RSNA News™

April 2013 Volume 23, Number 4

ABR "Exam of the Future" Sharpens Focus on Images

ALSO INSIDE:

DECT, MR Hold Vast Potential in Pulmonary Imaging

Radiology Cares Campaign Combats 'Invisibility' Factor

Ultrasound, MR Breast Imaging Studies Spark Debate

Novel Imaging Tool Could Improve Prostate Cancer Therapy

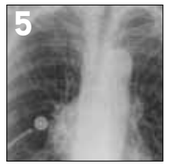
RSNA 2013 Advance Registation and Housing Open May 8—See Page 23

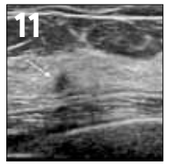
APRIL 2013 • VOLUME 23, NUMBER 4

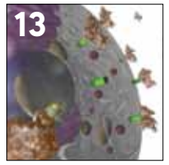
RSNA News™

RSNA MISSION

The RSNA promotes excellence in patient care and healthcare delivery through education, research and technologic innovation.







UP FRONT

1 First Impression

4 My Turn

FEATURES

5 ABR "Exam of the Future" Sharpens Focus on Images

7 DECT, MR Hold Vast Potential in Pulmonary Imaging

9 Radiology Cares Campaign Combats 'Invisibility' Factor

11 Ultrasound, MR Breast Imaging Studies Spark Debate

RADIOLOGY'S FUTURE

13 Novel Imaging Tool Could Improve Prostate Cancer Therapy

15 R&E Foundation Donors

NEWS YOU CAN USE

19 Journal Highlights

20 *Radiology* in Public Focus

21 Education and Funding Opportunities

23 Annual Meeting Watch

23 The Value of Membership

24 *RSNA.org*

24 Residents & Fellows Corner

Available on the App Store

ANDROID APP ON Google play

Access the *RSNA News* tablet edition on the App Store and Google play.

facebook

twitter

Follow us for exclusive news, annual meeting offers and more!

AAWR ANNOUNCES 2012 AWARDS

The American Association for Women Radiologists (AAWR) has announced its 2012 award recipients:


Ramchandani


Pisano


Salamon

Parvati Ramchandani, M.D., section chief of genitourinary radiology and professor of radiology and surgery at the Perelman School of Medicine at the University of Pennsylvania Medical Center, received the Marie Sklodowska-Curie Award. Dr. Ramchandani is a member of the RSNA Public Information Committee, the Public Information Advisors Network and the Genitourinary Radiology Subcommittee of the Scientific Program Committee.

Etta D. Pisano, M.D., vice-president for medical affairs, dean of the College of Medicine and professor in the Department of Radiology at the Medical University of South Carolina (MUSC), received the Alice Ettinger Distinguished Achievement Award. Dr. Pisano is a member of RSNA's Public Information Advisors Network and is a past-president of the Association of University Radiologists.

Noriko Salamon, M.D., Ph.D., a professor of radiology at the University of California, Los Angeles (UCLA) David Geffen School of Medicine, was honored with the Women in Neuroradiology Leadership Award.

Gayatri Joshi, M.D., a fourth-year radiology resident at MUSC, received the Lucy Frank Squire Distinguished Resident Award in Diagnostic Radiology.

Michelle M. Kim, M.D., a fourth-year radiation oncology resident at the University of Texas MD Anderson Cancer Center in Houston, was honored with the Eleanor Montague Distinguished Resident Award in Radiation Oncology.


Joshi


Kim

Thrall Steps Down as Radiologist-in-Chief at MGH; Brink Fills Position

James H. Thrall, M.D., has stepped down as radiologist-in-chief at Massachusetts General Hospital (MGH), in Boston, effective February 1. He was succeeded by **James A. Brink, M.D.**, previously chair of the Department of Diagnostic Radiology at Yale University.

In 1988, Dr. Thrall became the first person to receive the Juan M. Taveras Professorship of Radiology at the Harvard Medical School and was appointed radiologist-in-chief at MGH, positions he has held since then. A renowned researcher, Dr. Thrall's clinical interests include nuclear cardiology, PET scanning and skeletal scintigraphy. Dr. Thrall has lectured internationally on radiology in medicine, and is considered a preeminent authority on the subject worldwide. He is also a nationally recognized expert in radiology and economics.

Dr. Thrall has served as president of the American Roentgen Ray Society and as Chairman of the Board of Chancellors and President of the American College of Radiology (ACR). Dr. Thrall was awarded the RSNA Gold Medal in 2007 and served on the RSNA Research & Education (R&E) Foundation Board of Trustees from 2002 to 2008. He has served as Perspectives Editor for *Radiology*. Dr. Thrall will continue to serve on the National Advisory Council for Biomedical Imaging and Bioengineering of the National Institute of Biomedical Imaging and Bioengineering, where he will help guide the national research agenda for radiology. He plans to remain active in research at the MGH.

Dr. Brink held his post at Yale since 2006. He serves as vice-president of the National Council on Radiation Protection and Measurements. Dr. Brink is co-chair of the ACR-RSNA Joint Task Force on Adult Radiation Protection (see My Turn, Page 4) and is a member of RSNA's Patient-Centered Radiology Steering Committee.


Thrall


Brink

COMING NEXT MONTH

We offer a glimpse into the radiology room of the future and discuss the growing importance of lighting, noise control, room design and other factors central to improving workplace ergonomics.

NIBIB Appoints New Advisory Council Members

Three new members have been appointed to the National Advisory Council for Biomedical Imaging and Bioengineering of the National Institute of Biomedical Imaging and Bioengineering (NIBIB):


Tromberg


Weinbaum

Sohi Rastegar, Ph.D., director of the Office of Emerging Frontiers in Research and Innovation at the U.S. National Science Foundation, Directorate for Engineering.

Bruce Tromberg, M.D., director of the Beckman Laser Institute and Medical Clinic and a professor of Biomedical Engineering and Surgery at the University of California, Irvine.

Sheldon Weinbaum, Ph.D., a distinguished professor of biomedical and mechanical engineering at the City College of the City University of New York.

NIBIB, a component of the National Institutes of Health, implements a wide variety of biomedical imaging and bioengineering programs to foster the development of innovative medical technologies to improve healthcare.

Tell a Colleague—Renew Now

RSNA members who did not renew their membership by Dec. 31, 2012, ceased receiving their RSNA publications, including *RSNA News*. Know someone who hasn't renewed? Encourage them to retain all the benefits of RSNA membership by renewing today at *RSNA.org/renew*.

In addition to subscriptions to *RSNA News*, *RadioGraphics* and *Radiology*, RSNA benefits include:

- Free advance registration to the annual meeting
- Free education tools to maximize learning and earn CME
- Networking opportunities with radiology professionals from across the globe
- myRSNA®, which lets you build your own personal online workspace

Members who are transitioning into practice from training pay reduced rates their first and second years. For more information, contact *membership@rsna.org*, 1-877-RSNA-MEM (776-2636) or 1-630-571-7873 (outside the U.S. or Canada).

New York Roentgen Society Celebrates 100 Years

Founded in in April 1912, the New York Roentgen Society (NYRS) celebrated its 100th anniversary during its October annual meeting. NYRS is the second oldest radiology society in the U.S. and the only American society from which Wilhelm Roentgen accepted an honorary membership.


Roentgen

A gala dinner was held during the centenary celebration honoring all NYRS past-presidents including 2011 RSNA President Burton P. Drayer, M.D., and 2010 RSNA President Hedvig Hricak, M.D., Ph.D., Dr. h.c.

Radiology Introduces "Fast-Track" for Journal Submissions

Responding to the need for more rapid processing of "high interest" manuscripts, *Radiology* recently introduced a fast-track option for journal submissions.

While all authors can request fast-track processing, the journal is particularly interested in articles involving rapidly developing, competitive areas such as molecular imaging, PET/CT, PET/MR imaging and cardiovascular imaging, according to *Radiology* Editor Herbert Y. Kressel, M.D. The goal is to publish fast-track articles online within two months of manuscript submission.

For example, "Submillisievert Median Radiation Dose for Coronary Angiography with a Second-Generation 320–Detector Row CT Scanner in 107 Consecutive Patients," was published online January 23, 2013, about six weeks after submission.

Authors are required to include a letter documenting the reasons that their manuscript is appropriate for fast-track processing at the time of online submission through ScholarOne and send a copy of the letter to *Radiology* editorial office at *radiology@rsna.org*. The author will receive a determination within two working days of submission.

For more information on the fast-track processing, see Dr. Kressel's January 2013 *Radiology* editorial, "Changes for Changing Times," at *radiology.rsna.org/content/266/1/3.full.*

A. James Barkovich, M.D., (*left*) receives the American Society of Neuroradiology gold medal from 2011-12 ASNR President David B. Hackney, M.D., (*center*) and Gold Medal Committee Chair M. Judith Donovan-Post, M.D.

ASNR Awards Barkovich Gold Medal

2012 RSNA Outstanding Researcher **A. James Barkovich, M.D.**, was awarded the 2012 American Society of Neuroradiology (ASNR) Gold Medal. Dr. Barkovich is a professor of radiology and biomedical imaging, neurology, pediatrics and neurosurgery and chief of pediatric neuroradiology at the University of California, San Francisco.

Dr. Barkovich helped pioneer the use of MR imaging to search for evidence of injury or abnormal development in the brains of newborns. His research significantly contributed to the decreased frequency of neonatal brain injury and the improved outcomes of injured neonates over the past 20 years.

IN MEMORIAM

Bertram R. Girdany, M.D.

Bertram R. Girdany, M.D., a pioneer in the field of pediatric radiology, passed away July 31, 2012. He was 93.

In 1950, Dr. Girdany was hired by Children's Hospital of Pittsburgh to establish its radiology department. He went on to become chair of the Department of Radiology at the University of Pittsburgh Medical Center and taught at the University of Pittsburgh School of Medicine. His work in pediatrics and radiology in the 1950s and 1960s led to significant strides in documenting injuries caused by physical abuse and understanding battered child syndrome. Dr. Girdany was a charter member of the Society for Pediatric Radiology.

IN MEMORIAM

Philip W. Ralls, M.D.

Ultrasound expert Philip W. Ralls, M.D., passed away September 23, 2012. He was 64.

Dr. Ralls was vice-chair of the Department of Radiology Academic Affairs and a professor of radiology at the Keck Medical Center of the University of Southern California. Dr. Ralls served as president of the Society of Radiologists in Ultrasound from 2007 to 2009 and as president of the ultrasound section of the Los Angeles Radiological Society from 1984 to 1986.

Numbers in the News

18

Number of subspecialty and modality categories covered on the new computer-based and image-rich American Board of Radiology (ABR) Core Examination, to be administered for the first time in fall 2013. For more information about the new test, turn to Page 5.

22

Number of new video clips on *RadiologyInfo.org*. Turn to Page 22 to learn more about the latest in the "Your Radiologist Explains" video series to help explain various radiology tests and treatments to visitors to the public information website. Topics include cardiac CT, lung cancer and blood clots.

30

Approximate number, in thousands, of predicted deaths from prostate cancer in 2013, according to the National Cancer Institute. See Page 13 to learn about research, funded by the RSNA Research & Education (R&E) Foundation, that could improve image-guided radiation therapy for the disease.

237

Number of R&E Foundation grant applications received for 2013. Applications are currently under review and funding decisions will be made by the R&E Foundation Board of Trustees later this month. For a listing of recent donors that help make R&E Foundation grants possible, turn to Page 15.

My Turn

Be an Agent of Change: Take the Pledge

If someone told me years ago that someday I would help launch a social marketing campaign to raise awareness about adult radiation protection, I would have asked, "what's a social marketing campaign?" Loosely stated, such a campaign addresses social problems using commercial marketing techniques. When change is needed on a large scale over a broad period of time, social marketing can effectively raise awareness and modify behavior.

In June 2009 RSNA and the American College of Radiology (ACR) established the Joint Task Force on Adult Radiation Protection, which recommended a social marketing campaign targeting adult medical imaging with ionizing radiation. Building upon the success of the Image Gently campaign for children, the Task Force named its new initiative "Image Wisely." They also recognized the importance of widening the circle to include medical physicists and imaging technologists, as represented by the American Association of Physicists in Medicine (AAPM) and American Society of Radiologic Technologists (ASRT), respectively.

IMAGE WISELY™
Radiation Safety in Adult Medical Imaging

The Image Wisely campaign launched at RSNA 2010 and initially focused on CT. From 2011 to 2012 the second phase was completed, targeting nuclear medicine. Planning for the third phase is under way, targeting radiography and fluoroscopy. More than 17,000 individuals have pledged to adhere to the principles of Image Wisely:

- Put patient's safety, health and welfare first by optimizing imaging examinations to use only the radiation necessary to produce diagnostic quality images
- Convey the principles of the Image Wisely Program to the imaging team in order to ensure that my facility optimizes its use of radiation when imaging patients
- Communicate optimal patient imaging strategies to referring physicians, and be available for consultation
- Routinely review imaging protocols to ensure that the least radiation necessary to acquire a diagnostic quality image is used for each examination

I have a healthy respect for social marketing and its power to heighten awareness and inspire change. If you've not yet taken our pledge, I encourage you to adopt the principles of Image Wisely.

James A. Brink, M.D., is radiologist-in-chief at Massachusetts General Hospital in Boston. Dr. Brink represents RSNA as co-chair of the Joint Task Force on Adult Radiation Protection and is a member of RSNA's Patient-Centered Radiology Steering Committee.

THIS MONTH IN THE *RSNA NEWS* TABLET

Get more of this month's news with the *RSNA News* Tablet edition, available for download through the App Store and Google Play.

April features a three-episode video series, "Radiology Cares: The Untold Future," illustrating why you want to become more visible to your patients, and offers a variety of online tools and resources to aid residents prepare for the new American Board of Radiology (ABR) Core Examination. Users can also hear *Radiology* Senior Deputy Editor Deborah Levine, M.D., conduct a podcast discussion of the *Radiology* study, "Screening US in Patients with Mammographically Dense Breasts: Initial Experience with Connecticut Public Act 09-41."

Access the *RSNA News* tablet edition on the App Store at *itunes.apple.com/us/app/rsna-news/id444083170?mt=8* and Google Play at *https://play.google.com/store/apps/details?id=air.org.rsna.rsnanews&hl=en*.

RSNA News
April 2013 • Volume 23, Number 4
Published monthly by the Radiological Society of North America, Inc.
820 Jorie Blvd., Oak Brook, IL 60523-2251. Printed in the USA.

Postmaster: Send address correction "changes" to: *RSNA News*, 820 Jorie Blvd., Oak Brook, IL 60523-2251

Non-member subscription rate is $20 per year; $10 of active members' dues is allocated to a subscription of *RSNA News*.

LETTERS TO THE EDITOR
rsnaneus@rsna.org
1-630-571-7837 FAX

SUBSCRIPTIONS
subscribe@rsna.org
1-888-600-0064
1-630-590-7770

REPRINTS AND PERMISSIONS
permissions@rsna.org
1-630-571-7829
1-630-590-7724 FAX

ADVERTISING
advertise@rsna.org
Jim Drew, Director
1-630-571-7819

RSNA MEMBERSHIP
1-877-RSNA-MEM

RECYCLED PAPER
RECYCLABLE PAPER
PRINTED WITH SOY INK

ABR "Exam of the Future" Sharpens Focus on Images

Always a pressure-packed event, this year's two-day, 11-hour American Board of Radiology (ABR) Core Examination promises an even greater challenge to radiology residents: navigating the inaugural "Exam of the Future." The image-rich, computer-based test covers 18 subspecialty and modality categories and has been applied only on a much smaller scale until now.

Years in the making, the new ABR Core Examination in Diagnostic Radiology is a comprehensive review of diagnostic radiology and physics concepts as they relate to imaging. It is highly standardized and tests clinical reasoning and management at a much greater level of analysis than in the past.

"Some felt that parts of the previous exam were esoteric and that the questions lacked clinical relevance," said ABR Trustee Duane G. Mezwa, M.D., professor and chair of diagnostic radiology and molecular imaging at Oakland University-William Beaumont School of Medicine in Rochester, Mich., and a faculty advisor to the RSNA Resident and Fellow Committee. "We developed a new structure that is much more relevant to daily clinical practice."

Set to debut this fall, the ABR Core Examination will be administered as a qualifying exam to third-year diagnostic radiology residents in lieu of the traditional written examinations in both physics and diagnostic radiology. Residents on the new schedule will take the ABR Certifying Exam 15 months after completing a four-year radiology residency, replacing the oral examination traditionally given during the fourth year of training. The first certifying exam will be offered in 2015.

For third-year residents preparing for the first ABR Core Examination, the new test represents uncharted territory. They are the pioneers; there is no one to give them feedback and advice based on previous tests. "As we get closer to the date, it's becoming a little more stressful," said Joshua Kuban, M.D., a third-year radiology resident at Baylor College of Medicine in Houston. "There's no existing formula for success on this exam."

"Residents don't know what to expect," said Aparna Annam, D.O., a fellow in pediatric interventional radiology at Texas Children's Hospital in Houston and chair of the RSNA Resident and Fellow Committee. "Because there is no precedent, they're not all sure what they're supposed to study."

Mezwa

Annam

ABR Resources Prepare First Class of Residents

To that end, ABR is providing a variety of resources for residents including a study guide and a 100-item practice exam on its website. (See Sidebar.) The organization is also inviting the inaugural class to participate in one of two Core Pilot Examinations administrations to be conducted at both the Chicago Test Center and the Tucson Test Center on June 20-21 (first administration) and June 24-25, 2013 (second administration).

"This class will be the best prepared in ABR history," Dr. Mezwa said.

For third-year residents, however, the practice test could mean added travel and expense during a year in which they are slated to participate in the four-week American Institute of Radiologic Pathology (AIRP) course in Maryland. "I wish the ABR Core Pilot Exam was available locally," Dr. Kuban said. "Between AIRP and two trips to Chicago for testing, the third year is going to be very expensive."

> "As we get closer to the date, it becomes a little more stressful. There's no existing formula for success on this exam."
>
> **Joshua Kuban, M.D.**

ON THE COVER

Images will be a central component of the new ABR Core Examination scheduled to debut this fall.

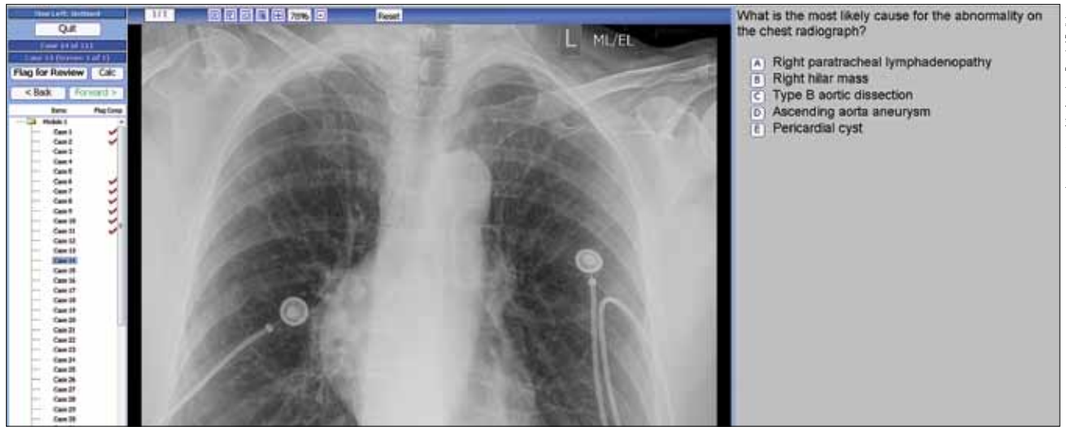


Image courtesy of the American Board of Radiology

The American Board of Radiology (ABR) is inviting the inaugural class to participate in one of two Core Pilot Examinations scheduled for June 2013. Above: a screenshot from the ABR Practice Exam.

ABR moved the Core Examination to the third year partly to enable residents to subspecialize during the fourth year without the pressure associated with studying for the ABR certifying oral examination, a period often dubbed "board frenzy."

Historically, some programs in diagnostic radiology allowed residents time off from clinical duties to study for the oral exam. However, the new ABR exam structure provides an opportunity to reevaluate this practice. A position statement issued by the Association of Program Directors in Radiology (APDR), published in the November 2012 issue of the *Journal of the American College of Radiology*, describes the rationale behind a recommendation of no time off from clinical service before the ABR Core Examination.

"At Baylor, we're trying to set up a curriculum to take advantage of the fourth year," Dr. Kuban said. "We'll have six months that are service-oriented and six months of mini-fellowships and electives."

"The fourth year will allow residents to gain an area of focus before taking the Certifying Exam," Dr. Mezwa added.

The new timeline also will mean that most residents will graduate as U.S.-board eligible rather than board certified, Dr. Annam said. "Time will tell whether this will become an issue when applying for jobs," she said. "The people who are hiring will have to know that certification is expected to come later."

Exam Emphasizes Images, Practical Clinical Issues

To gain firsthand experience of the breadth of material and familiarity with the exam centers, Dr. Annam recommends that eligible residents take the Core Pilot Exam if possible. She completed a pilot version of the test and believes the exam meets its intended goals. "The questions did not deal with esoteric minutiae, but with relevant, practical matters like how to reduce radiation dose or fix an artifact on an exam," she said.

The exam covers 18 categories: breast, cardiac, gastrointestinal, interventional, musculoskeletal, neuroradiology, nuclear medicine, pediatric, reproductive/endocrinology, thoracic, genitourinary, vascular, CT, MR, radiography/fluoroscopy, ultrasound, physics and safety.

As ABR representatives to the RSNA Resident and Fellow Committee, John Krol, M.D., and Monique Meyer, M.D., relay new information about the exam to committee members. "Prior tests included few images, so it's nice to know this exam will have lots of images, which is the core of radiology," said Dr. Krol, a third-year resident at the University of Kentucky College of

Continued on Page 8

PREPARE FOR ABR EXAMS WITH IPAD-COMPATIBLE APPS

Tablet computers such as iPad and compatible apps are ideal preparation tools for the ABR's new computer-based, image-rich certification exams, according to Sabeen Dhand, M.D., a third-year resident at Northwestern Memorial Hospital in Chicago.

Dr. Dhand saw the potential of the iPad as a radiology education tool from the time he got his first tablet in 2010. He exchanged e-mails with Steve Jobs, the late founder of Apple, setting a chain of events in motion culminating in Northwestern offering iPad availability to all radiology residents in September 2011. "At Northwestern, we've loaded more than 1,000 articles on the iPad and any new content is automatically updated for residents," he said.

At an RSNA 2012 session, Dr. Dhand and colleagues reviewed iPad-compatible apps that could help residents prepare for the ABR Core Examination. Many such apps are available on the iTunes store for free or less than $10. "There's no single dedicated app for the new Core Exam," Dr. Dhand said. "It's more a matter of finding what's available and applying it to your preparation."

Dr. Dhand recommends Elsevier Case Reviews Online as a comprehensive source. Each of the five different apps cost $19.99 on iTunes. Radiology Assistant ($5.99) is another useful app, Dr. Dhand said. Developed by the Radiological Society of the Netherlands, the app includes a good selection of articles on all the major anatomical regions. And for reading all those radiology articles, Dr. Dhand suggests downloading GoodReader for the iPad for $4.99.

Access iTunes at *itunes.apple.com*.

DECT, MR Hold Vast Potential in Pulmonary Imaging

Dual-energy CT (DECT) and MR are destined to play a much larger role in pulmonary imaging in the not-so-distant future, according to researchers who are investigating new applications for the technologies.

"We are clearly modifying our way of scanning patients," said Martine Rémy-Jardin, M.D., Ph.D., head of the Department of Thoracic Imaging, the University Hospital, Lille, France, who presented new findings on emerging thoracic applications at RSNA 2012. "There is no longer just a single energy source and one way to administer contrast material. There are new ways to use CT technology."

Six years of clinical investigation using DECT led Dr. Rémy-Jardin to a number of new insights about the technology. She said DECT offers major advantages in material decomposition and the elimination of artifacts; for example, DECT can be used to suppress image artifacts around the superior vena cava due to iodine-containing contrast agents during chest CT.

"High-energy CT will suppress these artifacts, improving our ability to analyze the lymph nodes when staging cancer," Dr. Rémy-Jardin said. "Alternatively, we can use low-energy CT to increase the level of attenuation in the vessels. This allows us to use less iodine, which is especially useful for patients with renal impairment."

DECT also improves upon routine CT scanning by providing more than anatomical information. "DECT scanning can provide both morphology and functional information based on the same data set," Dr. Rémy-Jardin said.

DECT effectively generates perfusion and ventilation images similar to those produced by scintigraphy, which can be helpful in detecting acute and chronic pulmonary embolisms (PEs) and especially distal lesions, she added.

"DECT is especially helpful when looking for small clots that are very difficult to see," she said. "Instead of looking for the clot, we look for the consequence of the occlusion by observing perfusion."

Applied to thoracic imaging, DECT can improve the diagnosis of PE, lung malignancies and parenchymal diseases.

Investigators researching new applications for dual-energy CT (DECT) and MR in pulmonary imaging presented their findings at RSNA 2012.

MR Surpassing CT in Some Areas of Chest Imaging

While chest MR has played a very small role in routine clinical care up to now, it is "potentially a very powerful technique for chest imaging," according to Jens Bremerich, M.D., a professor of radiology and head of cardiothoracic imaging at the University of Basel Hospital, Switzerland, who offered an update and new developments on thoracic MR imaging at RSNA 2012.

Technical limitations—including longer exam times and lower spatial resolution of MR compared to that of CT and the low-proton density of the lung—have historically limited the use of MR for pulmonary applications. However, the latest generation of MR scanners is capable of overcoming a major limitation of MR: magnetic field inhomogeneities at air-tissue interfaces in the lung, Dr. Bremerich said.

> "Pulmonary MR offers the potential to cover several relevant aspects of the pulmonary evaluation in one examination."
>
> **Jens Bremerich, M.D.**

"Major MR manufacturers are all producing new scanners with strong, powerful gradients that enable single images to be acquired much faster and with very short echo times," he said.

As a result, MR now surpasses CT for tissue characterization in the chest. "Using the variety of MR sequence options, from T1 and T2 to diffusion-weighted and fat-saturation, it's possible to characterize a pulmonary mass and nail down a differential diagnosis," he said. "That's not possible with CT. With CT, you're simply able to detect a mass and ascribe it a benign or malignant appearance."

Even current MR scanners using diffusion-weighted sequences are capable of characterizing masses in the chest, making pulmonary MR a viable alternative to nuclear medicine studies, Dr. Bremerich said. He cited a January 2012 study in *European Radiology* demonstrating that diffusion-weighted MR imaging performed as well as PET/CT in pre-operative staging of non-small-cell lung cancer.

"PET/CT is the non-invasive gold standard for detecting malignancies of the chest," said Dr. Bremerich. "However, this study showed that diffusion-weighted MR performed equally well."

WEB EXTRAS

To access an abstract of the study, "Preoperative Staging of Non-small-cell Lung Cancer: Comparison of Whole-Body Diffusion-weighted Magnetic Resonance Imaging and 18F-Fluorodeoxyglucose-Positron Emission Tomography/Computed Tomography," in *European Radiology*, go to *www.ncbi.nlm.nih.gov/pubmed/22772365*.

MR also offers possibilities for evaluating lung function, including:

- Ventilation of the lung to characterize chronic obstructive pulmonary disease (COPD) and emphysema
- Perfusion of the lung to detect PE and pulmonary artery hypertension
- Evaluation of the lung prior to lobectomy

"Pulmonary MR offers the potential to cover several relevant aspects of the pulmonary evaluation in one examination," Dr. Bremerich said. Pulmonary MR is unlike cardiac MR procedures, he added, which are technically difficult to administer. MR offers other advantages over PET and PET/CT, including absence of radiation and greater availability.

"PET/CT isn't universally available but many institutions have an MR scanner," he said.

Unfortunately, radiologists' perception of pulmonary MR is lagging behind both new technology and research, Dr. Bremerich concluded. "Many radiologists still think pulmonary MR isn't useful," Dr. Bremerich said. "That has to change." □

ABR "Exam of the Future" Sharpens Focus on Images

Continued from Page 6

Medicine in Lexington and a member of the RSNA Resident and Fellow Committee.

"I would say 75 to 80 percent of the test will have an image associated with the question," Dr. Mezwa said. "Around 40 percent of the questions relate to factual knowledge and 60 percent involves higher levels of analysis, like ABR's standard oral exams."

Unlike previous incarnations, the new Core Examination will not feature a separate physics component; instead, physics questions will be integrated into each category. Performance on the entire set of physics items will be evaluated separately in scoring the examination.

Residents can expect to see curriculum adjustments to keep up to date on physics instruction. Dr. Annam suggested that physics be taught along with each core subject. Many residents, like Dr. Kuban have been studying RSNA Physics Modules online to prepare. (See Sidebar.) "The physics component is the big unknown," Dr. Kuban said. "I've been using modules on the RSNA website as a primary means for review and our program at Baylor is providing us with a two-week review course."

Despite uncertainty over the new exam, there is optimism that the inaugural session will be a success. "Understanding the basics of the test development has led me to believe that those individuals developing the test of the future have my best interests in mind," Dr. Krol said. "I feel comfortable that I will be tested thoroughly, and my results will be a product of whether or not I understand the fundamentals of what I need to know to do this job." □

WEB EXTRAS

ABR offers a multitude of resources at *www.theabr.org*:

The ABR Exam Experience: an overview of what happens on the days leading up to and including the exam day for various ABR examinations. Download a PDF of the document.

The ABR Core Practice Examination: Content selected for this practice exam is a sample of what could be found on a Core Exam. The software interface is the same as that used in the ABR exam centers.

Information on the Exam of the Future: Access a fact sheet, a PowerPoint presentation and a timeline for transition to the Core and Certifying Exams.

RSNA/AAPM Online Physics Modules

Access the self-guided modules that include self-testing features to create a comprehensive experience for the viewer at *www.rsna.org/RSNA/AAPM_Online_Physics_Modules_.aspx*.

CORE EXAMINATIONS SET FOR FALL 2013

The first ABR Core Examination will be offered at ABR exam centers in Chicago and Tucson, Ariz., on September 30 and October 1, 2013, and on October 2 and October 3, 2013. These dates were chosen to avoid close proximity with the last large June 2013 oral exam administration. Core Examinations will be administered each June thereafter.

The first ABR Certifying Examination—to be administered 15 months after completion of diagnostic residency training—will be offered in Fall 2015. For more information, go to *www.theabr.org.*

Radiology Cares™ Campaign Combats 'Invisibility' Factor

By encouraging meaningful physician engagement in the patient experience, RSNA's new Radiology Cares™ campaign offers an effective solution to a common problem radiologists often face: invisibility.

"Even though we actively participate in patient care, we're relatively invisible to the eye of the patient," said William T. Thorwarth Jr., M.D., a radiologist/partner at Catawba Radiological Associates in Hickory, N.C., and RSNA Board Liaison for Publications and Communications. "We need to be seen as we actually are: active participants in patient care."

At RSNA 2012, RSNA launched the "Radiology Cares: The Art of Patient-Centered Practice" campaign—an initiative linked with the annual meeting's patient-centered theme—challenging radiologists to play a more visible and active role.

To aid that effort, RSNA has put together a library of online tools at *RadiologyCares.org*. Online resources include PowerPoint presentations that can be customized for specific audiences and patient-centered care literature from scientific journals, medical trade publications and mainstream consumer media. (See Sidebar.)

Central to the campaign is the Radiology Cares pledge encouraging radiologists and other imaging professionals to commit to more meaningful engagement in the patient experience, with the goal of helping patients make better informed decisions regarding their healthcare. Those taking the pledge at *RadiologyCares.org* receive campaign updates and new materials as they are developed.

"This campaign is an outgrowth of the efforts of the RSNA Public Information Committee (PIC), which has made great strides in increasing public awareness about modern imaging technologies," said Mary C. Mahoney, M.D., director of breast imaging at the University of Cincinnati Medical Center's Barrett Cancer Center and chair of RSNA's Patient-centered Radiology Steering Committee. "However, research has shown that many consumers are unaware of the role radiologists play in their healthcare."

In addition, various market forces—from the growth of teleradiology and non-radiologists performing imaging exams to changing reimbursement models and healthcare reform—present both a threat and an opportunity within the specialty. As a result, experts say it is more critical than ever for radiologists to prioritize patient satisfaction and strengthen relationships with referring physicians, hospital administrators and insurers.

"The whole field will lose credibility and respect over time if all we do is read images and are not engaged in the process," Dr. Mahoney said. "We need to bring more to the table or we'll become less relevant to clinicians and patients."


Thorwarth


Mahoney


Wagner


Kemp

Self-Assessment Critical to Patient-Centered Practice

To become more patient-centered, Dr. Thorwarth suggests that radiology practices conduct self-assessments addressing the entire continuum of care. "We need to be continually asking, 'What are we doing well? Where do we need to improve?'" he said. "Every radiologist knows the value of making the patient experience more positive, from convenient parking to a comfortable waiting area to easy and timely access to results."

While the Radiology Cares campaign suggests increasing face-to-face interaction, Dr. Mahoney said talking to patients and sharing results is just one small piece of the overall patient experience. Specific initiatives undertaken to improve that experience—and keep up with the pace of change—will vary from practice to practice.

> "The whole field will lose credibility and respect over time if all we do is read images and are not engaged in the process."
>
> **Mary C. Mahoney, M.D.**

"There's no such thing as being perfectly centered on the patient," said Brent J. Wagner, M.D., president of West Reading Radiology Associates in Reading, Pa. "The fact that you are moving in the right direction is what really counts."

When it comes to talking to patients, Dr. Wagner advises radiologists to look for opportunities for interaction and then strive to get the most out of each exchange. "If we interact with just two or three patients a day, there's no reason we can't bring an emotional energy and investment to each of those interactions," he said.

For example, Dr. Wagner said he takes the opportunity to meet with the parents of children who have had normal ultrasound exams, patients who've undergone biopsies and those asking to speak with a radiologist.

Educate Patients, Ask for Feedback

Empathy for patients maneuvering through the healthcare system prompted Jennifer L. Kemp, M.D., and her colleagues to develop communication tools for their patients at Rose Medical Center in Denver, where she serves as chair of the Radiology Department. Those resources include patient education videos, a follow-up postcard and thank-you letters that solicit feedback.

"I wanted to include information on radiologist training in these pieces because I think even my friends and family don't have a clue as to what I do," said Dr. Kemp, also a private practice radiologist with Diversified Radiology, a large Denver-based radiology group, and a member of RSNA's Patient-Centered Radiology Steering Committee. "In our current healthcare environment, people need to know the value we offer."

The postcard they give to patients directly addresses the invisibility issue and emphasizes quality: "While you might not have seen us, we know you are here; we know your physicians and what they are looking for. We work hard to assure that you are having the best and safest test to address your symptoms."

To improve accessibility to referring physicians, Dr. Kemp and colleagues list their direct phone number at the bottom of reports—a change she says has had a profound effect on both physician relationships and her work life.

"Referring physicians call constantly now," she said. "They want to talk about appropriate follow up or ask for a second opinion. As a result, I find my work much more rewarding; I feel more connected with the patients. And it helps me to be a better radiologist."

Despite the interruptions, Dr. Kemp said the volume of exams read by the six radiologists at her hospital is among the highest in her 50-radiologist group. "I'd rather be part of a team caring for patients than just someone turning out a report," she said. "I strongly believe that I'm building a trust among referring physicians and patients because they know their exams are being read by a radiologist who cares." □

Launched at RSNA 2012, the Radiology Cares Campaign is designed to help radiology professionals become more comfortable interacting directly with their patients and to help patients become more comfortable with their radiology experiences. To aid that effort, RSNA developed a library of online tools at *RadiologyCares.org* (*above*) where imaging professionals can also Take the Pledge to play a more visible and active role in patient care.

WEB EXTRAS

***RadiologyCares.org* features access to a wide variety of resources related to patient-centered care, including:**

- **Education Toolkit:** Your index to literature about the movement to become patient-centered from experts, scientific journals, medical trade publications and mainstream consumer media.
- **Presentation Toolkit:** Customizable PowerPoint presentation decks to help you convey the importance of radiologists being patient-centered to your colleagues and communities.
- ***RadiologyInfo.org*:** Direct your patients to *RadiologyInfo.org* for information on radiology procedures, treatments and therapies.
- **Contact:** *RadiologyCares@rsna.org* with questions/comments about the campaign or to share your patient-centered activities.
- **Take the Pledge:** "Take the Pledge" to communicate more effectively with your patients and other healthcare providers. The page posts a current tally of pledges to date.
- **Video Series:** The page also features an entertaining, three-episode video series, "Radiology Cares: The Untold Future," illustrating why you want to become more visible to your patients.

Ultrasound, MR Breast Imaging Studies Spark Debate

Along with shedding new light on the issue, two recent* Radiology *studies are generating debate on the effectiveness of supplemental ultrasound and MR imaging in breast cancer detection in patients at elevated risk for the disease—including those with dense breasts.

In the first study, investigators discovered that supplemental handheld screening breast ultrasound offered to women in the general population with dense breasts aided in detecting small mammographically occult breast cancers, although the overall positive predictive value was low. The other study demonstrated high accuracy achieved by a dedicated breast MR imaging system. Both studies appeared in the October 2012 issue of *Radiology*.

Authored by Regina Hooley, M.D., an assistant professor of diagnostic radiology at the Yale University School of Medicine, New Haven, Conn., and colleagues, the first study examined the effectiveness of a 2009 Connecticut law requiring providers to alert women with dense breasts and offer supplemental ultrasound screening.

Hooley

Harms

Connecticut is one of five states including Texas, Virginia, New York and California that now have mandatory breast density notification laws. Similar bills are under consideration in many other states. In addition, a federal Breast Density Inform bill (HR 3102) has been introduced. Opponents of the mandates say the role of supplemental ultrasound as a screening modality is unproven and additional screening doesn't improve detection enough to justify the cost or the risk of false positives that lead to unnecessary biopsies.

Experts also stress that patients must be aware that ultrasound screening is meant only as supplement to mammograms—not a replacement.

Conducted at Yale, the study retrospectively reviewed the records of 935 women with dense breasts at mammography who subsequently underwent supplemental handheld ultrasound screening and/or whole-breast ultrasound. A majority (65.7 percent) were at low risk, 15.9 percent were at intermediate risk and 9.3 percent were at high risk for breast cancer. The ultrasound examinations found 187 (20 percent) results classified as BI-RADS category 3 and 47 (5 percent) classified as BI-RADS category 4. Out of 63 biopsies and aspirations performed based on the ultrasound exam results, three were malignant, one in each risk group. All three were solid masses, smaller than 1 cm, in postmenopausal patients.

"This study shows that radiologists can provide supplemental breast screening successfully," Dr. Hooley said. "We had a lot of patients who wanted this test, although we didn't offer it before the law went into effect. We found we could provide it efficiently by allowing technologists to perform exams and this proved comparable to physician-performed exams. We can detect small invasive mammographically occult cancers."

Dr. Hooley said some physicians refer only their high-risk patients—those who have risk factors in addition to dense breast tissue—for additional screening, while others routinely refer all of their patients who have dense breasts. "We're doing a study now to trying to determine physician referral patterns," she says.

Most women in the screening study were of average risk, and Dr. Hooley said the results could be different if only high-risk patients were studied.

Breast Imaging Experts Question Research Outcomes

Dr. Hooley's research, originally published online in *Radiology* in June 2012, is generating controversy among breast imaging experts who contend that the data do not represent the established definition of "screening" and that the role density plays in the risk of breast cancer is still unclear.

> "This study shows that radiologists can supply supplemental breast screening successfully."
>
> **Regina Hooley, M.D.**

In an editorial in the October 2012 issue of *Radiology*, Carl J. D'Orsi, M.D., and Edward A. Sickles, M.D., stress that universally accepted definitions of "screening" and "diagnostic" for breast imaging examinations are critical to ensuring valid comparisons of breast imaging technologies and assessing whether their greatest impact would be in a screening or diagnostic setting or both.

The authors also discuss the potential impact of Dr. Hooley's research on the legal mandates concerning breast density that increasing number of states are poised to pass into law. "The lack of separation between screening and diagnostic examinations in the report of Hooley et. al, has considerable relevance as a potential indicator of future benchmark performance, given that the reported data skew the outcomes expected from true screening ultrasound to falsely appear more favorable than they really are," the authors write. "These data may be used to affect the decisions of lawmakers who are considering similar legislation in other states. In our opinion, such government mandates are premature."

In addition, experts caution that the false positive rate associated with supplemental ultrasound screening is exceptionally high, so much so as to limit its acceptability.

Dedicated Breast MR Imaging Yields Promising Results

The second study evaluating the effectiveness of a dedicated breast MR system analyzed patients without regard to breast tissue density, although patients in all screening cases had risk factors for breast cancer that included breast tissue density.

Lead researcher Steven Harms, M.D., a radiologist at the Breast Center of Northwest Arkansas in Fayetteville, a clinical professor of radiology at the University of Arkansas for Medical Sciences in Little Rock, and colleagues evaluated a breast-specific MR imaging system developed by Aurora Imaging Technology, North Andover, Mass., which underwrote the study. The design, conduct, and analysis of the study were performed by American College of Radiology (ACR) Image Metrix, Philadelphia, an independent imaging contract research organization, which also oversaw the writing of the manuscript under contract to Aurora Imaging Technology.

Researchers analyzed results from 937 screening and diagnostic breast MR images from four sites using the specialized device. Biopsy data from cancer cases and one-year follow-up information from negative cases were available. The negative predictive value was 98.9 percent for diagnostic cases and 100 percent for screening cases. The false positive rate was 11.2 percent overall, but only 4.9 percent for screening cases. The analysis showed no difference in performance relative to breast density.

A remaining challenge is to reduce the cost per exam, said Dr. Harms, medical director of Aurora Imaging Technology and a stockholder in the company. He noted that the Aurora system costs about $1 million and the cost per study varies from $500 to $1,100 depending on demographics and available insurance coverage. The machines perform two studies an hour compared with four or five for a digital mammography system.

"We have to be judicious in how we use the resource, but if it were cheaper, we would recommend it all the time," Dr. Harms said. "The interesting thing is that all of our MR studies are done the same way. We might be able to develop a screening MR study with lower cost and faster throughput."

"One of the key roles I see for ACR Image Metrix is to help companies like Aurora evaluate their products for special attributes that, if the research is positive, can help differentiate them in the marketplace," said study author Bruce Hillman, M.D., ACR Image Metrix' founder and chief scientific officer and the Theodore E. Keats Professor of Radiology and Public Health Sciences at the University of Virginia in Charlottesville.

While investigators concluded that high accuracy was achieved using dedicated breast MR imaging, they cite limitations to the research, including the retrospective design of the study and a patient sample that was heavily weighted toward diagnostic, rather than screening examinations. Moreover, they are concerned about the study's "generalizability to other settings." As Dr. Harms noted, "MR imaging was performed at dedicated breast centers with expertise in breast imaging. However, the comparison studies were all from subspecialized radiologists in academic centers who used rigorous diagnostic criteria in a research setting. It is unlikely that these findings are totally caused by interpretation skills alone." □

a.

b.

Mammographically occult cancer detected at screening breast ultrasound was demonstrated in research: (*a*) Gray-scale screening ultrasound image in a 60-year-old woman shows a 4-mm infiltrating ductal carcinoma (*arrow*) in the right breast. (*b*) Corresponding digital screening mammogram obtained one month prior was negative for cancer (BI-RADS category 1).

WEB EXTRAS

To hear *Radiology* Senior Deputy Editor Deborah Levine, M.D., conduct a podcast discussion of "Screening US in Patients with Mammographically Dense Breasts: Initial Experience with Connecticut Public Act 09-41," with researcher Liane E. Philpotts, M.D., go to *radiology.rsna.org/content/265/1/suppl/DC1*.

To access the full study by Regina J. Hooley, M.D., and colleagues, go to *radiology.rsna.org/content/265/1/59.full?sid=cb83c334-0970-4535-8d3a-9e64f27db3fd*.

Access the *Radiology* editorial on that research, "To Seek Perfection or Not? That is the Question," at *radiology.rsna.org/content/265/1/9.full*.

Access Dr. Hooley's response to the editorial and additional letters on the issue in the March 2013 issue of *Radiology* at *radiology.rsna.org/content/266/3/997.full*.

Access the study "Diagnostic Performance of a Dedicated 1.5-T Breast MR Imaging System" at *radiology.rsna.org/content/265/1.toc*.

For more information on the ACR Image Metrix, go to *www.acrimagemetrix.com*.

Novel Imaging Tool Could Improve Prostate Cancer Therapy

Despite the continually rising incidence and mortality rates for prostate cancer, options for targeted imaging of the disease remain relatively limited.

To THAT END, in 2009 one researcher parlayed a $30,000 Bracco Diagnostics/RSNA Research Resident Grant into a project to develop a novel imaging tool that seeks to overcome those limitations and ultimately improve image-guided radiation therapy. That project led to additional American Cancer Society (ACS)-funded research on the subject.

"Improved imaging can help with management decisions and disease targeting with image-guided radiation therapy," said William Rockey, M.D., Ph.D., an assistant professor of radiation oncology at the University of Iowa (UI) Hospitals and Clinics in Iowa City. "Many groups are doing exciting work using different approaches to address this need, but current U.S. Food and Drug Administration (FDA)-approved options for targeted imaging of prostate cancer are limited."

In 2013, the National Cancer Institute estimates 238,590 new cases of prostate cancer in the U.S. and approximately 29,720 deaths from the disease.

Currently the only FDA-approved targeted imaging agent for prostate cancer is capromab penetide (trade name ProstaScint®), an antibody tethered to a single-photon emitting radionuclide. The imaging agent has been successful in imaging localized prostate cancer and larger lymphatic metastases but is less effective in detecting non-necrotic prostate tumors and smaller metastases. Because capromab is directed against a receptor expressed on prostate-specific membrane antigen (PSMA), ProstaScint can only bind to necrotic cells present in large tumors, which reduces its sensitivity. In addition, the imaging agent can remain in the body up to one week, potentially leading to liver and bone marrow toxicity and lower-quality images.

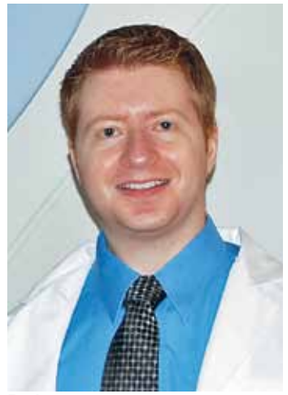
Project Explores Potential Targeted Aptamers

Dr. Rockey sought to overcome these limitations through his research project, "High-Resolution Ribonucleic Acid (RNA)-Based Targeted PET Imaging Agents for Prostate Cancer," launched after seeing the success of his mentor, Paloma Giangrande, Ph.D., an assistant professor of internal medicine at UI, who used aptamers that bind to PSMA to deliver therapeutic small interfering RNA (siRNA). Dr. Rockey teamed with Dr. Giangrande and co-mentor and radiochemistry expert at UI, assistant professor of radiology Michael Schulz, M.D., to investigate further.

"We wanted to investigate whether these targeted aptamers could be used for imaging," Dr. Rockey said.

Researchers demonstrated the binding of the aptamer to purified protein, human prostate cancer cells in culture and eventually targeted in vivo delivery to a mouse xenograft model of prostate cancer. They also conducted initial work in a mouse metastatic prostate cancer model.

"The goal was to conjugate a chelator that housed a radionuclide for PET or single-photon emission CT (SPECT) imaging to the aptamer," Dr. Rockey said. "Along with Dr. Schulz's research team, we investigated different chemistries and radiolabeling conditions that would be compatible with RNA and produce the highest labeling yields."



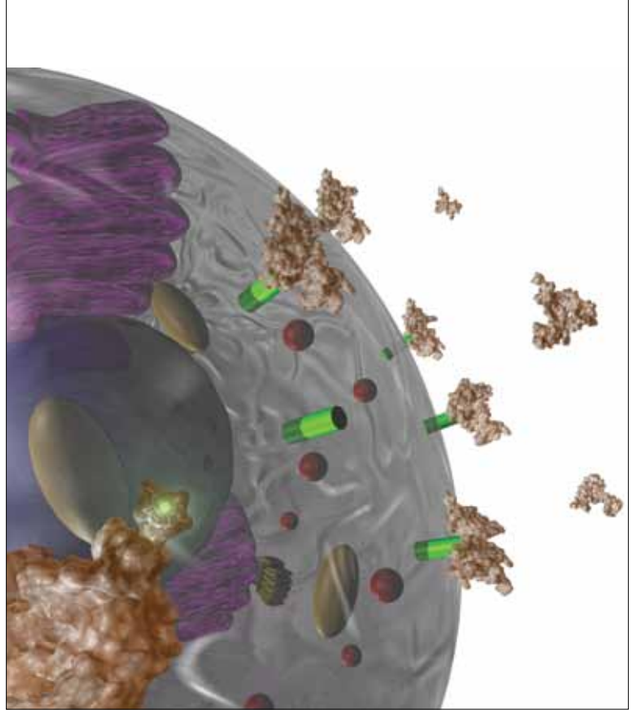
Rockey

Findings Have Possible Therapeutic Benefit

One particularly exciting outcome was the development of a new aptamer sequence with improved affinity over a previously described RNA aptamer to PSMA. "We showed that this aptamer sequence inhibits PSMA's enzymatic activity, which has been linked to carcinogenesis," Dr. Rockey said. "These findings could potentially have therapeutic benefit."

In addition, researchers were able to conjugate a near-infrared (NIR) fluorophore to the aptamer. "Targeted NIR imaging may in the future have potential clinical use for intraoperative evaluation of tumor margin status, extent and lymph node involvement," Dr. Rockey said.

> "We showed that this aptamer sequence inhibits PSMA's enzymatic activity, which has been linked to carcinogenesis."
>
> **William Rockey, M.D., Ph.D.**



Images courtesy of William Rockey, M.D., Ph.D.

Using a Bracco Diagnostics/RSNA Research Resident Grant, researcher William Rockey, M.D., investigated the potential of targeted aptamers in imaging and therapy of prostate cancer. *Above, left*: an illustration of radiolabeled aptamers binding to prostate-specific membrane antigen (PSMA) (green cylinders) on the surface of a prostate cancer cell; *right*: an illustration of a ribonucleic acid (RNA) aptamer conjugated to a chelator housing a radionuclide.

"Given the therapeutic potential of this PSMA RNA aptamer for applications including targeted imaging and therapy of prostate cancer, optimization to facilitate large-scale chemical synthesis of this RNA is compelling," Dr. Giangrande added. This image-guided therapeutic option for prostate cancer represents a crucial step toward the development of treatment strategies that are safer and more effective than current FDA-approved options, she said.

Furthermore, Dr. Rockey's work "highlighted the utility of computational RNA secondary and tertiary structure models for guiding the truncation of RNA aptamers in order to enable and expedite large-scale chemical synthesis of these RNAs for clinical applications," Dr. Giangrande said. "Given the emerging therapeutic potential of RNA oligonucleotide aptamers, advancements that facilitate their translation into the clinic are desirable."

RSNA Grant Leads to Continued Research

The project opened the door to exciting new directions in his research, Dr. Rockey said. "The research project gave me hands-on experience in many fields, including molecular biology and radiochemistry," said Dr. Rockey, who learned techniques for RNA transcription and purification and was mentored in radiochemistry by Dr. Schulz.

Dr. Rockey has since received an institutional ACS seed grant to continue developing an RNA aptamer for NIR and PET imaging of prostate cancer. He credits the RSNA grant with giving him a greater appreciation of the science behind diagnostic tests commonly ordered in the clinic, as well as their strengths and weaknesses.

"I think molecular imaging will have an integral role in the future for providing individualized care for cancer patients," he said. "I'm excited about the benefits that improved imaging technologies can offer in developing better therapeutic outcomes while minimizing side-effects and toxicity." □

GRANTS IN ACTION

NAME:
William Rockey, M.D., Ph.D.

GRANT RECEIVED:
Bracco Diagnostics/RSNA Resident Research grant

STUDY:
"High-Resolution Ribonucleic Acid (RNA)-based Targeted PET Imaging Agents for Prostate Cancer"

CAREER IMPACT:
Dr. Rockey plans to continue this project in an academic setting and says the support obtained from the RSNA grant was invaluable in jump-starting the project for ultimately carrying it to the clinic.

CLINICAL IMPLICATION:
The project could potentially lead to a highly specific PET-based imaging agent that may substantially improve the management of prostate cancer. "The project will also contribute to the advancement of methodologies that can be applied to engineer targeted imaging agents for other human diseases," Dr. Rockey said.

For more information on all R&E Foundation grant programs, go to *RSNA.org/Foundation* or contact Scott Walter, M.S., Assistant Director, Grant Administration at 1-630-571-7816 or *swalter@rsna.org*.

RESEARCH & EDUCATION FOUNDATION DONORS

The R&E Foundation thanks the following donors for gifts made December 8, 2012 – January 15, 2013.

Vanguard Program

Companies supporting endowments and term funding for named grants

Bayer HealthCare
$105,000
A Vanguard company since 2004

Bracco Diagnostics
$60,000
A Vanguard company since 1990

GE Healthcare
$100,000
A founding Vanguard company since 1989

Visionaries in Practice

A giving program for private practices and academic departments

BRONZE ($10,000)

St. Paul Radiology Foundation
St. Paul, Minn

Visionary Donors

Individuals recognized for cumulative lifetime donations

SAPPHIRE VISIONARY ($50,000)
Mary & Allen F. Turcke, M.D.

The RSNA R&E Foundation provides the research and development that keeps radiology in the forefront of medicine. Support your future—donate today at *RSNA.org/donate.*

Individual Donors

Donors who give $1,500 or more per year qualify for the RSNA Presidents Circle. Their names are shown in bold face.

$5,000 - $10,000
Louise & Richard G. Lester, M.D.
Mary & Allen F. Turcke, M.D.

$2,500 – $4,999
Joseph H. Introcaso, M.D.
Kumaresan Sandrasegaran, M.D.

$1,500 – $2,499
Anonymous
Mary & Alton W. Baker, M.D.
In memory of Dr. Elias Theros and in honor of Dr. Maurice Reeder
Sallie & Michael H. Bleshman, M.D.
Joan Eliasoph, M.D.
Gail Fishman & Steven C. Horii, M.D.
Norman E. Leeds, M.D.
In honor of Beatrice Leeds
Donald R. Logan, M.D.
Ada & Hector T.G. Ma, M.D.
Vania L. & Tito L. Mundim, M.D.
Marilyn & Jack E. Price
Betsy & Christopher G. Ullrich, M.D.
Beatrice & Marnix T. van Holsbeeck, M.D.
In honor of Louis van Holsbeeck

$500 – $1,499
Anonymous
Patricia A. Barry-Lane, M.D., Ph.D. & John P. Lane
Navya Dasyam, M.B.B.S. & Anil K. Dasyam, M.D.
Peter L. Davis, M.D.
William A. Fajman, M.D.
Lori Gottlieb, M.D. & Elliot K. Fishman, M.D.
Edward G. Grant, M.D.

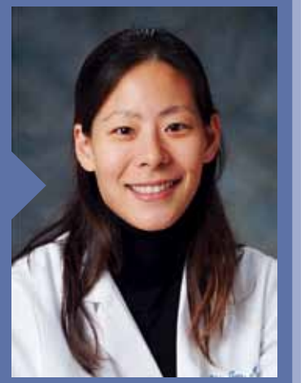
$251 – $499
Mara & Jonathan D. Dorff, M.D.
Linda D. & Bennett S. Greenspan, M.D.
Per Liss, M.D., Ph.D.
Joel Mollin, M.D.
Claudia S. Reynders, M.D.
Muhammad A. Zaheer, M.D.

$250 – or less
Anonymous (3)
Wynn W. Adam, M.D. & Jeffery S. Adam
Dana & Brent H. Adler, M.D.
Paula Aguilera, M.D.
Absar Ahmed, M.D.
Paul M. Aitchison, M.D.
Yves D. Ajavon-Kisseh, M.D.
Giustino Albanese, M.D.
Raghdah Sulaimany & Adel F. Albukhari, M.B.B.Ch.
Khaldoon Al-Dulaimy, M.D.
Melissa R. Moore & Thomas C. Alewine, M.D.
Kamran Ali, M.D.
David W. Allen, M.D.
Kenneth S. Allen, M.D.
Karin & Torsten H. Almen, M.D.
Hind S. Alsaif, M.D., Ph.D.
Sindy & Mark D. Alson, M.D.
Giorginela Alvarez
Steven M. Amberson, M.D.
Naimish & Suvarna Amin, M.D.
Shadi Aminololama-Shakeri, M.D.
David R. Anderson, M.D.
James C. Anderson, M.D.
Ana Andres Paz
Teresita L. Angtuaco, M.D., F.A.C.R. & Edgardo J. Angtuaco, M.D., F.A.C.R.
Noel J. Aoun, M.D.
Christopher Aquino, M.D.
Maria d. Aragao
Marco V. Aragon, M.D.
Tetsuro Araki, M.D.
Sara E. Arboleyda Nava, M.D.
Branch T. Archer III, M.D.
Shannon E. Ardoin, M.D. & Gregory Ardoin
Lova T. Arenivas, M.D.
Amaia Arrillaga Hermoso
Marjory & Delano Z. Arvin, M.D.
Susan M. Ascher, M.D. & Paul E. Kalb
George F. Ascherl Jr., M.D.
William E. Ashley, M.D.
Adel A. Assaf, M.D.
William M. Astor, M.D.
Manos Astrinakis, M.D.
Melany B. Atkins, M.D.
Akouavi H. Attignon, Ph.D.
Margaret C. Avagliano, M.D.
Kenneth E. Averill Jr., M.D.
Nami R. Azar, M.D.
Joseph T. Azok, M.D.
Ralph H. Baehr, M.D.
John H. Bair, M.D.
Justin K. Baker, M.D.
Michael R. Baker, M.D.
Juanito T. Baladad, M.D.
Rajkumari B. Balchandani, M.D.
David J. Balison, M.D.
Norbertina L. Banson, M.D.
Brendan R. Barber, M.B.Ch.B.
Celine C. Bard, M.D.
Allan Barklie
Fayyaz Barodawala, M.D.
Panagiotis Baroutas, M.D.
Kimberly N. & J. Edward Bass, M.D.
Lynnette & Jose A. Bauza, M.D.
Michael Bazzani, M.D.
Ricardo Becerra Ulloa, M.D.
Dawn E. & Marshall E. Bein, M.D.
Ajit Belliappa, M.D.
Robert B. Benazzi, M.D.
Robert A. Beres, M.D.
Aaron D. Berg, M.D.
Judy & Richard M. Berger, M.D.
Paulo M. Bernardes, M.D.
Marla & David H. Berns, M.D.
Carlo Biagini, M.D.
E. Wiley Biles, M.D.
Paul A. Bilow, M.D.
Ranjit Bindra, M.D., Ph.D.
Michael J. Birkhoff, M.D.
Steven B. Birnbaum, M.D.
Allan C. Bisbee, M.D.
Michael L. Black, M.D.
Kristine Blackham, M.D.
Dominique Blanc, M.D.
James V. Blazek, M.D.
Maximo V. Bleza, D.O.
Rita J. Blom, M.D.
Alain G. Blum, M.D.
Arlene & Sydney D. Bogart, M.D.
Steven M. Boker, M.D.
Mitra B. Boodram, M.D.
Susana L. Bordegaray, M.D.
Tommie & Morton A. Bosniak, M.D.
William D. Boswell Jr., M.D.
Lynnette & Vincenzo Botha, M.D.
Antonio Bottari, M.D.
Sharon & David R. Bowen, M.D.
Alan J. Boykin, M.D.
Adam Bracha, M.D.
Bruce H. Braffman, M.D.
Nancy & David Brake, M.D.
Michael Brand
Gertrud & Juergen Brandt, M.D.
Stuart E. Braverman, M.D.
Brian W. Bresnahan, Ph.D.
Charles R. Brite, M.D.
Douglas C. Brown, M.D.
Karen T. Brown, M.D.
Sara R. & Stephen D. Brown, M.D.
Sally Browning, M.D.
Paulo Marcio S. Brunato-Filho, M.D.
Lawrence D. Buadu, M.B.Ch.B., Ph.D.
Maria M. Noriega & Jesus H. Burboa Delgado, M.D.
Jonathan H. Burdette, M.D.
John T. Burke, M.D.
Christophe Campolini
Alexandre Campos
Alma Rodriguez-Garciz & Ignacio Cano-Munoz, M.D.
Huyen V. Cao, M.D.
Seth Cardall, M.D.
Lucia Carpineta, M.D. & Michael Gaul
Anne & Thomas M. Carr III, M.D.
Rocio Carreno-Gonzalez Sr., A.R.R.T.
Dora Medeiros De Castro & Nero S. Castro, M.D.
Angela DuPont & Jean Chalaoui, M.D.
James E. Challen, M.B.B.S.
Thomas W. Challis, M.D.
Wing Pong Chan, M.D.
Priti Chandiwala-Mody, D.O.
Akemi C. Chang, M.D.
Rohini N. Nadgir, M.D. & Kevin J. Chang, M.D.
Premwadee K. Chantra, M.D.
C. James Chen, M.D., Ph.D.
Herbert W. Chen, M.D.
Drs. Karen & James Chen
Maria Castoldi Chiara, M.D.
Vineet Chib, M.D.
Albert W. Cho, M.D.
Yeon Hyeon Choe, M.D., Ph.D.
Andrew I. Choi, M.D.
Kyu-Ho Choi, M.D.
Christopher L. Chong, M.D.
Suzanne T. Chong, M.D. & Patrick Cho, M.D.
Garry Choy, M.D.
Siok-Lin Chua, M.B.B.S.
Sue S. Chua, M.B.B.S. & Simon R. O'Connor
William Chua, A.R.R.T.
Yale Yueh-Ju Chung, M.D.
Mary Beth Tibbs & Gary J. Classen, D.O.
Ma. Antonietta Climaco
Kevin J. Coakley, M.D.
Martin I. Cohen, M.D.
Maddalena Pellegrini & Paolo Colamussi, M.D.
Thomas P. Cole, M.D.
Jay R. Coleman, B.S.
Sarah Comtois
Patricia M. Mengoni, M.D. & John E. Connolly Jr., M.D.
Heidi M. Cooper, M.D.
Richard F. Cooper, M.D.
Debra S. Copit, M.D. & Steven Copit
Lisa A. Corrente, M.D.
Sheila & Philip Costello, M.D.
Cody A. Cox, M.D.
Daniel L. Croteau, M.D.
Jerry R. Croteau, M.D.
Angeles Cruz Diaz, M.D. & Roberto Martinez
Michel Cymbalista, M.D.
Johannes Czernin, M.D.
Robert Dagan, M.D.
Amelie Damphousse, M.D.
Huu-Ninh V. Dao, M.D.
Denny J. Dartez, M.D.
Daniel C. Davis, M.D.
Melissa B. Davis, M.D.
Dania Daye, B.S.
Susanne Daye, M.D. & Luis Canales
Erika L. De La Cruz Reyna, M.D.
Marcel T. de Witte, M.D.
Lori A. Deitte, M.D. & Mark Rice, M.D.
Jack A. Dempsey Jr.
Jolanta M. Dennis, M.D.
Niranjan S. Desai, M.B.Ch.B.
Debbie A. Desilet-Dobbs, M.D. & Larry Dobbs
Elise Desperito, M.D. & Robert Braumuller
Drew H. Deutsch, M.D.
Djeven P. Deva, M.B.B.Ch.
Nripendra C. Devanath, M.D.
John P. Deveikis, M.D.
Larry M. Dietrich, M.D.
Prof. Adrian K. Dixon
Adam A. Dmytriw, M.Sc.
Keith F. Dockery, M.D., M.S.
Jonathan D. Dodd, M.D.
Jan Pieter Doeling, M.D.
Therese Suarez & Kei Doi, M.D., Ph.D.
Carol A. Dolinskas, M.D.
Montserrat Domingo Ayllon, M.D.
Dolores Dominguez-Pinos, M.D.
Sharon H. & John F. Dotter, M.D.
Peter Drescher, M.D., M.S.
Jim Drew
In memory of Delmar Stauffer
Eric Drouot, M.D.
Nancy C. Duarte, M.D.
Thomas L. Dumler, M.D.
Rupak Dutta, M.B.B.S.
Piotr S. Dziurkowski, M.D.
Gale Tiemtcheu Mimon Fride & Ambroise Mathurin Dzogang Temdemno, M.D.
Lilian O. Ebuoma, M.D.
Steven Bryan Edson, M.D.
Muneer Eesa, M.B.B.S. & Naseera Koya
Marna J. Eissa, M.D. & Hazem Eissa
Hamza El Aidi, M.D.
Jorge Elias Jr., M.D., Ph.D.
Patrick Elshout
Nina Elisabeth Eltvik
Brenda & Ayman Elzarka, M.D.
Ashot Emdjain
Masahiro Endo, M.D.
Erwin H. Engert Jr., M.D.
Michele Ennis
W. Scott Enochs, M.D., Ph.D.
Monica S. Epelman, M.D. & Gustavo Epelman
Per Kristian Erdal
Laura S. Gordon, M.D. & Frank A. Erickson, M.D
Randy D. Ernst, M.D.
Doug Fairbanks
Lawrence C. Fan, M.D.
Michael E. Farber, M.D.
John S. Farrell, M.D.
Robert T. Fazzio, M.D., Ph.D.
Lynne & Michael P. Federle, M.D.
Ann M. Fenna, M.B.B.S.
Brett D. Ferdinand, M.D.
Lauri & Irwin M. Feuerstein, M.D.
Angela J. Feyerabend, M.D.
Kathleen C. Finzel, M.D.
Stacie O. & Christian M. Fisher, M.D.
Kendra L. Fisher, M.D.
Thomas W. Fiss Jr., M.D.
Frederick B. Fitts Jr., M.D.
James B. Fitzgerald, M.D.
Donald J. Flemming, M.D.
Jessica & W. Dennis Foley, M.D.
Thalia B. Forte, M.D.
Robert P. Fortunato, M.D., M.B.A.
Valérie Foslin
Ziporah & Fabius N. Fox, M.D.
Klaus J. Frank, M.D.
Susan & James D. Fraser, M.D.
Jesper Fredriksson
Rita I. Freimanis, M.D.
Warren B. Freitag, M.D.
Jean M. Malecki & James T. Friedland, M.D.
Elizabeth Orvoen-Frija, M.D. & Guy Frija, M.D.
Karen S. Frush, M.D. & Donald P. Frush, M.D.
Steve H. Fung, M.D.
Andre D. Furtado, M.D.
Jessica A. Galandak
Francesca Galati, M.D.
Colleen & Thomas J. Gallagher Jr., D.O.
Thomas E. Gallant, M.D.
Pablo A. Gamboa, M.D.
Marie A. Ganott, M.D.
Marcelo D. Garcia
Martin Garcia, M.D.
Doug Gauntz
James D. Geihsler, M.D.
Peter W. Gendall, M.D.
Brad Genereaux
Isabelle Reymtsens & Dirk A. Ghysen, M.D.
Michael S. Gibson, M.D.
Paul E. Gibson, M.B.B.S.
Lissa McKinley & Robert C. Gilkeson, M.D.
Rimvydas P. Gilvydis, M.D.
Alexander K. Girevendulis, M.D.
Matthew D. Givens, M.D.
Diane Glazer
William J. Glucksman, M.D.
Cyndi A. & Christopher D. Goeser, D.C., M.D.
Shlomit Goldberg-Stein, M.D.
Ross H. Golding, M.D.
Lori & Monte E. Goldtich, M.D.
Antoinette S. Gomes, M.D.
Antonio Marcus R. Gomes, M.D.
Clara F. Gomes, M.D.
Miguel Gomez
Jose A. Goncalves, M.D.
Kate & Shaun J. Gonda, M.D.
Alberto Gonzalez, M.D.
Laura Gonzalez Flores, M.D.
Glizet K. Abreu & Hernan Gordillo, M.D.
Lakshmi & Daniel S. Gordon, M.D.
Igor Goykhman, D.O.
Edward G. Grant, M.D.
Francisca Virginia C. Gras, M.D.
Clement J. Grassi, M.D.
Danna F. Grear, M.D.
Sonja M. Greenslade, M.B.B.S.
Mary-Louise C. Greer, M.B.B.S.
Jim Greve, M.D.
Katherine L. Griem, M.D. & Anthony Montag, M.D.
Faye & Mark J. Gripp, M.D.
Timothy M. Gronlie, M.D.
Steven C. Gross, M.D.
Kurt T. Grozinger, M.D.
Carol & John W. Grudis, M.D.
Ilka M. Guerrero, M.D.
Susanna Guerrini, M.D.
Dale W. Gunn, M.D.
Akash C. Joshi, M.D. & Arti Gupta, M.D.
Narainder Gupta, M.D.
Jeffrey Gusenburg, M.D.
Vasantha D. Aaron, M.D. & Sean D. Gussick, M.D.
Marina A. Gutwein, M.D.
H. Phillip Hahn, M.D.
Daniel Hallman, M.D.
G. Christopher Hammet, M.D.
Craig E. Hancock, M.D.
Jennifer Casarella & Timothy S. Hanes, M.D.
William K. Haney, M.D.
Christopher J. Hanrahan, M.D., Ph.D.
Gail C. Hansen, M.D. & Juris Gaidulis
Nina Irene Hansen
Martina & Thomas F. Hany, M.D.
Katherine & Jonathan M. Hard, M.D.
Heather Rae & Robin A. Harle, M.B.B.S.
Lawrence I. Harrison, M.D.
In memory of Malcolm D. Jones, M.D.
Robert P. Hartman, M.D.
Jennifer A. Harvey, M.D.
Kristine Hatcher, D.O. & Daniel Hatcher
David F. Hayes, M.D.
James V. Hazard, M.D., M.B.A.
Linda A. Heier, M.D.
Thomas S. Helling Jr., M.D.
Adelino & Herminia Henriques, M.D.
Kathleen Golueke-Heredia & Sergio L. Heredia, M.D.
Sean K. Herman, M.D.
Ralph P. Highnam, Ph.D.
Jennifer A. Hill, M.D.
Edwin M. Hilman, D.M.D.
Pamela L. Hilpert, M.D., Ph.D.
David A. Hirschl, M.D.
Chia Ming Ho, M.B.B.S.
Aaron Hochberg, M.D.
Glenn A. Hofer, M.D.
David E. Holznagel, M.D.
Gretchen & James A. Homan, M.D.
Sachiko & Zenichiro Hombo, M.D.
Minoru Honda, M.D.
Rose Horcher
Sarah J. Horton, M.B.B.S.
Daniel F. Housholder, M.D.
Timothy S. Howard, M.D.
Kathleen T. Hudson, M.D.
Thomas H. Hunt, M.D.
Benjamin Hyman, M.D.
Adriana M. Iglezias
Hirohiko Ikura, M.D.
Izumi Imaoka, M.D.
Rafael G. Isolani, M.D.
Saiko Isshiki, M.D.
Gerrit Jager, M.D., Ph.D.
Rolf Janka, M.D., Ph.D.
Edward A. Janon, M.D.
Gonzalo Jaramillo
Marcia C. Javitt, M.D. & Jonathan C. Javitt, M.D., M.P.H.
John J. Jaworsky, M.D.
Sharada Jayagopal, M.D. & Salem G. Jayagopal, M.D.
Paul M. Jeon, M.D.
Susan D. John, M.D. & Darrell John
Vera B. John-Mikolajewski, M.D.
Carl E. Johnson, M.D.
David M. Johnson, M.D.
John O. Johnson, M.D.
Michael J. Johnson, M.D.
Michele H. Johnson, M.D.
Cathy & Mark A. Jones, M.D.
Thomas R. Jones, M.D.
Ger Joosten
Neal Joseph, M.D.
Ronald C. Joseph, M.D.
Akash C. Joshi, M.D.
Diana T. Jucas, M.D. & Srini Vasan
Tsibulskaja Julia, B.A.

Continued on Next Page

Your Donations in Action

Alda L. Tam, M.D., M.B.A., of The University of Texas MD Anderson Cancer Center, Houston, was awarded a 2012 RSNA Research Seed Grant to develop her project, "Optimizing Techniques and Imaging Evaluation of Combination Locoregional Therapy in Rabbit VX2 Hepatic Tumors Using Radiolabeled Nanoparticles." Dr. Tam investigated the tumoral uptake of hollow gold nanoparticles loaded with doxorubicin when combined with either irreversible electroporation (IRE) or radiofrequency ablation. "This RSNA Seed Grant has made it possible to study whether the unique properties of IRE and nanoparticle technology can be integrated to create a better treatment platform for liver tumors, providing the critical information needed to translate this research concept into human clinical trials," Dr. Tam said.



Continued from Previous Page

Lam Ka Cheong, M.B.B.S.
Nidhi Kacholiya, M.D.
Elizabete Kadakovska
Howard Kahen, M.D.
Drew Kaiser, B.A.
Carl L. Kalbhen, M.D.
Peter H. Kalkman, M.D.
Kristine M. Mosier, D.M.D., Ph.D. & Andrew J. Kalnin, M.D.
Aaron P. Kamer, M.D.
Shotaro Kanao, M.D.
Eun-Ju Son & Heoung-Keun Kang, M.D.
Alan M. Kantor, M.D.
Grigory Karmazanovsky, M.D.
Russell Karp, M.D.
Stewart B. Karr, M.D.
Katsuya Kato, M.D.
Akitoshi Katsumata, D.D.S., Ph.D.
Yasushi Kawata, M.D.
Melanie & Mark W. Keenan, M.D.
Irwin A. Keller, M.D.
Ian A. Kellman, M.D.
Kevin M. Kelly, M.D.
Jennifer L. Kemp, M.D. & Nick Kemp
Susan S. Kemp, M.D.
Leah & Cameron C. Kersey, M.D.
Ayse Seyhan Kesmen, M.D.
Fabiola P. Kestelman, M.D.
Amisha R. Khicha, M.D. & Sanjay Khicha
Sara F. Khodair, M.D.
Kari & George M. Khoury, M.D.
Danalyn & Anil A. Kilpadikar, M.D.
Gina Lee & Charles Y. Kim, M.D.
Hee-Seork Kim, M.D.
Sooah Kim, M.D.
Sun Ju Kim, M.D. & Ho Gyun Lee
Tomoyoshi Kimura
Gabriela Hernandez & Eric T. Kimura-Hayama, M.D.
Mark A. King, M.D.
Valencia King, M.D.
Assen S. Kirov, Ph.D.
Jacobo Kirsch, M.D.
Kimberly S. Kirschner, M.D.
Angela & Donald R. Klein, M.D.
Alan K. Klitzke, M.D.
Heather Gilreath-Klosterman & Lance A. Klosterman, M.D.
Mariusz Knap
John D. Knudtson, M.D.
Myles B. Koby, M.D., D.D.S.
Byung-Hee Koh, M.D.
Cynthia Reese & Keith Y. Kohatsu, M.D.
Kryss Y. Kojima, M.D.
Elizabeth & Jay L. Korach, M.D.
Uwe Kostendt
Dimitra Koulogiorga, M.D.
Dawna J. Kramer, M.D. & Monte Kramer
Judy & Mark J. Kransdorf, M.D.
Sherrill & Kenneth L. Kraudel, M.D.
Renee & Michael C. Kreeger, M.D.
Smitha Saraswathy & Rajesh Krishnamurthy, M.D.
Ariel Y. Kruger, M.D.
Richard T. Kubota, M.D.
Marianne Kuehnast, B.M.B.Ch.
Andreea & Gregory B. Kugel, M.D.
Cheryl & Jeffrey A. Kugel, M.D.
Raymond H. Kuo, M.D.
Jessica Kurian, M.D.
Laraine & Stanley D. Kurisko, M.D.
Elizabeth T. Kutella, M.D.
Carolyn & Raymond A. La Rue III, M.D.
Kristen A. Lachance, M.D.
Colleen & Roby Lal, D.O.
Cheuk Hang Sunny Lam, M.B.B.S.
Veeda & Luis A. Landeras, M.D.
Patricia E. Lane, M.D.
Charlotte Lange, M.D.
Aitor Lasarte Izcue, M.D.
Claudia A. Lawn, M.D.
Pierre X. Le Hir, M.D.
Aleum Lee, M.D.
Edward Wolfgang Lee, M.D., Ph.D.
Min Hee Lee, M.D.
San-Kan Lee, M.D.
Su Ann Lee, M.B.Ch.B.
Barbara & Paul J. Leehey III, M.D.
David R. Lehnherr, M.D.
Stuart K. Lehr, M.D.
Shlomo Leibowich, M.D.
Daniel D. Leite, M.D.
Jennifer & Nicholas S. Lemoine, M.D.
Yurly Leontyev
Georges B. LeRoux, M.D.
Louise Nolet & Jacques J. Levesque, M.D.
Monique & Laurent Levy, M.D.
Barbara T. & Richard A. Levy, M.D.
Anning Li, M.D.
Joseph P. Li Puma, M.D.
Michael Licata, M.D.
Scott Lieberman, M.D.
Steven R. Lindemann, M.D.
Gregory D. Linkowski, M.D.
William N. Lisberg, M.D.
Pei-i Liu, M.D.
Thomas B. Lloyd, M.B.B.S.
John H. Lohnes, M.D.
David J. Lomas, M.D.
Jennifer J. Lombard, M.D.
Jordi Lopez
David LoPresti, M.D.
Kristen E. Lott, M.D.
Ana P. Lourenco, M.D. & Robert J. Tubbs, M.D.
Angelica T. Aguirre & Jesus A. Loza, M.D.
Pooitsing A. Lum, M.D.
Alan G. Lurie, D.D.S., Ph.D.
Mary & Charles R. Luttenton, M.D.
Deborah & James A. Lyddon, D.O.
Margaret A. Lynch-Nyhan, M.D.
Danny Z. Ma, M.D.
Tulio A. Macedo, M.D.
James D. MacGibbon, M.D.
Nathan A. Maertz, M.D.
Satkurunathan Maheshwaran, M.D.
Krikor Malajikian, M.D.
Zemfundo P. Malevu, M.B.B.Ch.
Javed I. Malik, M.B.B.S.
Sana & Noman Malik, M.D.
Joshua D. Mamelak, M.D.
Mary Ann & Ferdinand L. Manlio, D.O.
Norma Maranhao, M.D.
Edward M. Marchan
Renee & Milton Margulies, M.D.
Paul C. Marinelli, M.D.
Jose C. Marques, M.D.
Greg B. Marrinan, M.D.
Antonella & Angelo Marrone, M.D.
Victoria A. Marsik-Castillo, M.D.
Eric M. Martin, M.D., Ph.D.
Teresa B. & Gilbert M. Martinez, M.D.
Carolina Aponte, M.D. & Santiago Martinez-Jimenez, M.D.
Alan K. Marumoto, M.D., Ph.D.
Craig D. Maskiell, M.B.B.S.
John A. Mastrangelo, M.D.
Judith & Kenneth W. Matasar, M.D.
Jonathan L. Mates, M.D.
Laura & Vincent P. Mathews, M.D.
Veena M. Chandler, M.D.
Mifumi & Kiyoshi Matsueda, M.D.
Denis F. Matter, M.D.
Erik J. Maurer, M.D.
Lisa S. May, M.D.
Nadine & Alistair St. Aubyn McBean, M.B.B.S.
Erlinda S. McCrea, M.D. & Jay T. McCrea
Nancy & Charles W. McGuire, M.D.
Janine McIntosh
Ernest J. McKenzie, M.D.
J. Mark McKinney, M.D.
Jocelyn H. Medina, M.D.
Steven W. Medwid, M.D.
Ziad F. Meer, M.B.Ch.B.
Christopher J. Mehall, M.D.
Navid Mehrpoo, M.D.
Uma C. Mehta, M.Med.
Matthias W. Meissnitzer, M.D.
Thomas Meissnitzer, M.D.
Peter Melger
Renata Mellone, M.D.
Naeem Merchant, M.D.
Viktor M. Metz, M.D.
Eric Meyer
Craig Michael
Sarah S. Milla, M.D.
Charles J. Miller Jr., M.D.
Leslie J. Miller, M.D.
Michelle M. Miller-Thomas, M.D. & Louis K. Thomas
Ari D. Mintz, M.D.
Dimitri Misailidis, M.D.
Mary M. Mitchell, M.D.
Sally K. Mitchell, D.V.M.
Lee M. Mitsumori, M.D., M.S.
Brian J. Moffit, M.D.
Adrian C. Moger, M.D.
Nancy Mohsen, M.D.
Rosa L. Molina, M.D.
William M. Molpus, M.D.
George D. Momii, M.D.
Hebert F. Monteiro, M.D.
Josh B. Moosikasuwan, M.D.
Valdemar Moreno-Ford, M.D.
Jared K. Morgan, M.D.
Yoshimasa Mori
Carrie C. Morrison, M.D.
Nivine & James W. Moseley, M.D.
Jeanette M. Moulthrop, M.D. & Mark Moulthrop
Amol Mujoomdar, M.D.
Brendan T. Mullen, M.D.
Mark E. Mullins, M.D., Ph.D.
Steven J. Munzer, M.D.
Robyn C. Murphy, M.D.
Wayne Murphy, M.D.
Narasim Murthy, M.D.
Delon-Huerta Nahima, M.D.
Chieko & Yasuo Nakajima, M.D.
Dean A. Nakamoto, M.D.
Daniel Naranjo
Latha & Hrudaya P. Nath, M.D.
Kari J. Nelson, M.D.
Patrick A. Nelson, M.D.
Anne & Rory M. Nelson, M.D.
James A. Newcomb, M.D.
Anastacio C. Ng, M.D.
Lien & Dan T. Nguyen, M.D.
Maggie Wang & Michael H. Nguyen, M.D.
Vu H. Nguyen, M.D.
Daniela Nalio & Marcelo A.C. Nico, M.D.
Brett R. Nielson, D.O.
Lynn & Christopher M. Nieman, M.D.
Amber Mercier Nikolaidis & Paul Nikolaidis, M.D.
Barbara B. & Andrew D. Nish, M.D.
Wiwan Nitiwarangkul, M.D.
Luciana M. Nobrega, M.D.
John I. Nwankwo, M.D.
Edgar P. Obando, M.D.
Seth D. O'Brien, M.D.
Odd Harald Odland
Tomohisa Okada, M.D.
Colette U. Okundaye, M.B.B.S., F.W.A.C.S.
Efrain E. Orozco Sandoval, M.D.
Johanna Ortiz Jimenez, M.D.
Katharina Otani
Michelle & Richard R. Ozmun Jr., M.D.
Maer B. Ozonoff, M.D.
Carol & Mitchell T. Pace, D.O.
Eva & Eduardo C. Padilla, M.D.
Jose K. Palma, M.S., M.D.
Ioannis E. Papachristos, M.D.
Luc P. Paredis, M.D.
Sonali S. & Salil P. Parikh, M.D.
Hye Sun Park, M.D.
Devayani M. Patel, M.D.
Ketankumar I. Patel, M.B.B.S.
Aruna M. & Manu N. Patel, M.D.
Satish D. Patel, M.D.
Shodhan L. Patel, M.D.
Laura Paulsen
Steven H. Peck, M.D.
Shyla Penaroza, M.D.
John Percival
Anabela G. Peres, M.D.
Judith Castillo-Perez & Juan Carlos L. Perez Lozada, M.D.
Sophia B. Peterman, M.D., M.P.H.
Robin & Roderic I. Pettigrew, Ph.D., M.D.
Roger T. Pezzuti, M.D.
James B. Philipps, M.D.
Shaile Philips, M.D. & Prejesh Philips
Thomas J. Pietras, D.O.
Thelma & Daniel J. Pisano, M.D.
Yennory Perez & Jimmy A. Pizarro Jr., M.D.
Mabelle & Robert J. Pizzutiello Jr., M.D.
Michelle Dombrowski & Stephen D. Plichta Jr., M.D.
Mary E. & Donald A. Podoloff, M.D.
Stuart W. Point, M.D.
Maria Ponte, M.D.
Sarah G. Pope, M.D.
Beat Porcellini, M.D.
Francesco Potito, M.D.
Hendrik P. Prinsloo, M.B.Ch.B.
Ronald Prinsze
Jean-Pierre Pruvo, M.D., Ph.D.
Adnan A. Qalbani, M.D.
Georgina & Oscar C. Quiroz, M.D.
Liat Kishon-Rabin & Andrew M. Rabin, M.D.
Rayhaan Rahaman, M.B.B.S.
Rajesh Rai, M.D.
Ruthe M. & Ernest G. Raines, M.D.
Robert P. Raines-Hepple, M.D.
David R. Rallis, M.D.
Kalpana Ramakrishna, M.D.
Hector Ramirez Jr., M.D.
Berta Ramos
John W. Rampton, M.D.
Patricia A. Randall, M.D.
M.V. R. Rao, M.D.
Myra I. Rapoport, M.D. & Michael Balinsky
Leslie & Ulrich A. Rassner, M.D.
Janakie Ratnayake, M.B.B.S., M.D.
Jodie K. Van Wyhe, M.D.
Michele C. & James G. Ravenel, M.D.
Mark Reddick, M.D., M.S.
Althuru S. Reddy, M.D.
Dorothea C. Reichelt
Anja J. Reimann, M.D.
Elke Reiser, M.D. & Maximilian F. Reiser, M.D.
Robert Reuter, M.D.
Maria Caldas Vasquez & Roy F. Riascos, M.D.
Margaret & Bradford J. Richmond, M.D.
John S. Richmond, M.D.
Mark S. Ridlen, M.D.
Michael J. Rieder, M.D.
Steve N. Rindsberg, M.D.
Jose C. Rios, M.D., Ph.D.
Paul Riswick
Robert C. Roberts, M.D.
Joshua E. Robertson, M.D.
Jill I. Robinson, M.B.B.S.
Roxie & Joseph J. Roco, D.O.
Jonathan C. Rodrigues, M.B.Ch.B., M.R.C.P.
Pablo Rodriguez Covili, M.D.
Luis A. Rodriguez Palomares Jr., M.D.
Greg Roesel, M.D.
Benjamin M. Romney, M.D.
Lawrence M. Rosen, M.D.
Joanna Rossi, M.D.
Steven M. Roth, M.D., M.B.A.
Andrea J. Rothe, M.D. & Michael Shevach
Glenn S. Roush, M.D.
Miguel J. Rovira, M.D.
Lindsay J. Rowe, M.D., M.S.
Sarah E. Rowe, M.D.
Scott J. Rowen, M.D.
Lisa R. Rubenstein, M.D.
Deanna & Perry Rudich, M.D.
Michael B. Ruff, M.D.
Sandra A. Ruhs, M.D.
Gillian M. Rush, M.B.B.S.
Holly & Gregory K. Russo, M.D.
Douglas H. Ryoji, M.D.
Noah D. Sabin, M.D., J.D.
Stephen W. Sabo, D.O.
Rocky C. Saenz, D.O.
Niloufar Khoobehi & Hamid Salamipour, M.D.
Caryl G. Salomon, M.D. & Daniel R. Moon
Manuel T. Salvador, M.D., Ph.D.
David W. Samuelson, M.D.
Shaun D. Samuelson, M.D.
Francesco Sardanelli, M.D.
Penny Saxon, M.D.
Karl Sayegh, M.D.
James R. Sayre, M.D.
David E. Scafidi, M.D.
Mariano Scaglione, M.D.
Luke R. Scalcione, M.D.
Lisa M. Scales, M.D.
Dawid Schellingerhout, M.D.
Glenn A. Scheske, M.D.
Susann E. Schetter, D.O.
Richard S. Schilling
C. Christian Schlaepfer, M.D.
Hans M. Schlegel, M.D.
Shelley Adamo & Matthias H. Schmidt, M.D., M.Sc.
Christian Schneider, M.D.
Ingrid K. Schneider, M.D.
Joao Schumann
Siegfried A. Schwab
Louis N. Scotti, M.D.
Richard M. Seger, M.D.
Garvin Seto
Loretta A. Settonni, M.D. & John F. Settonni
Rodney G. Shaffer, M.D.
Riva & Howard Shein, M.B.B.Ch.
Swati & Dwarkanath S. Shembde, M.D.
Melinda J. & Edward Q. Shepherd, M.D.
Sheila Sheth, M.D.
Kan C. Shieh, M.D.
Joshua S. Shimony, M.D., Ph.D.
Shelly I. Shiran, M.D.
Judy S. & Michael S. Sidell, M.D.
Cicero J. Silva, M.D.
William Silverstein, M.D.
Gary E. Simmons, M.D.
Julian T. Simmons, M.D.
Judith E. Simon, M.D.
Laura W. Simons, M.D.
Claus S. Simpfendorfer, M.D.
Julie & Spencer Sincleair, M.D.
Rajwinder Singh, M.D., M.B.B.S.
Mark D. Sinnamon, M.B.B.S.
Kelly M. & Anthony J. Skiptunas III, D.O.
Priscilla J. Slanetz, M.D., M.P.H. & Raja A. Sayegh
Michael L. Sloan, M.D.
Kees Smaling
Kathleen & Gerald C. Smidebush, M.D.
Trish & Scott L. Smiley, M.D.
Darrin S. Smith, M.D.
Letita & W. Sean Smith, M.D.
Raul Socorro
Mariana Solari-Font, M.D.
Hannah S. Son, M.B.B.S., F.R.A.N.Z.C.
Kay & Sung-Ho Song, M.D.
Pradeep S. Sonwalkar, M.D.
Renato M. Soriao, R.T.
Deborah H. Goldstein & David E. Sosnovik, M.D.
Byron M. Sotomayor, M.D.
Lucia M. Spears, M.D.
Eric M. Spickler, M.D.
Eric M. Spitzer, M.D.
Michael J. Stadnyk, M.D.
Marie Staunton, M.B.B.Ch.
Alessandro Stecco, M.D.
Phyllis & Mark A. Stein, M.D.
Edward Steiner, M.D.
Bruce G. Stewart, M.D.
Michael A. Stewart, M.D.
Julie H. Stiles, M.D. & Michael R. England
Rudi Stokmans, M.D.
Daniel M. Stovell, M.D.
Jennifer M. & Bradley S. Strimling, M.D.
Erik W. Stromeyer, M.D.
Brian Stuart
Sakila Thiruvadivel & Rathan M. Subramaniam, M.D.
Timothy J. Sweeney, M.D.
Linus M. Swinnen, M.D.
Charles H. Sykes, M.D.
Jacob Szejnfeld, M.D.
Bashir A. Tafti, M.D.
Bing Tai, M.D.
Rogerio D. Takahashi, M.D.
Colin Tan, M.B.B.S.
Sergio Tapia Concha, M.D., Pharm.D.
Satoru Tazawa, M.D.
James S. Teal, M.D.
Jerrold B. Teitcher, M.D.
Hong-Giap Teo, M.B.B.Ch.
Yuen Mey Teoh, M.D.
Jiro Terada, M.D.
Tyler H. Ternes, M.D.
Renate Tewaag, M.D.
Jaime & Kyle M. Tharp, M.D.
David I. Thickman, M.D.
Bobby M. Thomas, M.D.
Charles Richard Thomas Jr., M.D.
In honor of the Department of Radiation Medicine, Oregon Health & Science University, Portland, Oregon
Russell B. Tippins, M.D.
Valentin Tissot
Tanya L. Tivorsak, M.D.
Jaroslaw N. Tkacz, M.D.
Christine A. Tremper, M.D.
Eric Trevino, M.D.
Rene Truter, M.B.Ch.B.
Salina D. Tsai, M.D.
Vaiman S. Tsang, M.D. & Peter Chiu, M.D.
Kyo Tsuda, M.D.
Raymond K. Tu, M.D.
William J. Tuddenham, M.D. & Phyllis S. Tuddenham
Masafumi Uchida, M.D., Ph.D.
Heidi R. Umphrey, M.D.
Takashi Ushimi, M.D., Ph.D.
Debra & Jonathan J. Uy, M.D.
Nagendram & Rajendra P. Valiveti, M.D.
Javier Vallejos, M.D.
Erik Van Den Bergh
Harrie C. Van Den Bosch, M.D.
Ronald L. Van Heertum, M.D.
Marion van Vliet, M.D.
Peter L. Vance, M.D.
Kuldeep K. Vaswani, M.D., Ph.D.
Flora & Carmo A. Vicentini, M.D.
Mary & Juan D. Vielma, M.D.
Onno D. Vijlbrief, M.D.
Maria & Henrique Vilaca-Ramos, M.D.
Rommel G. Villacorta, M.D.
Maria V. Villalon, M.D.
Marco H. Villanueva-Meyer, M.D.
Cecilia J. Villasante Luna, M.D. & Hector J. Caballero Lobera
Brant S. Vincent, M.D.
Jean-Charles Vinet, M.D.
John A. Vos, M.D.
Dorota Wach, M.D.
Ashley M. Wachsman, M.D.
Shannon & Van R. Wadlington, M.D.
Eric A. Walker, M.D.
Nicholas L. Walle, M.D.
Joshua A. Walsh, M.D.
Lilian Wang, M.D.
Thomas E. Warfel, M.D., Ph.D.
Lacey Washington, M.D.
Elliot J. Wasser, M.D.
Martin N. Wasser, M.D.
David Wasserman, M.D.
Margaret W. Weeks, M.D.
Chao-Jung Wei, M.D., Ph.D.
Ellen B. Wetter, M.D.
Beth E. Whiteside, M.D.
Michael Whiteside, M.D.
Mario C. Wilenmann, M.D.
Luanne & Alan L. Williams, M.D.
Rodrick A. Williams, M.D.
Morgan P. Williamson, M.D.
Thomas M. Wilmot, M.D.
Jamison L. Wilson, M.D.
David A. Wise, M.D.
Michael Wise, D.V.M.
Peter B. Wold, M.D.
Ronald L. Wolf, M.D., Ph.D.
Jade J. Wong-You-Cheong, M.D.
Reiko Woodhams, M.D., Ph.D.
Janette L. Worthington, M.D.
Adam Wronecki, M.D.
Rolf Wyttenbach, M.D.
Thaddeus M. Yablonsky, M.D.
Masashi Yamashiro, M.D.
Tomohiro Yamashita, M.D.
Jun Yang, M.D., Ph.D.
Stanley Yang, M.D.
Sergey Yasinetskiy
Nina & Ramana V. Yedavalli, M.S., M.D.
Jason L. Yewell, M.D., JD
Shinobu & Hiroyuki Yoshida, Ph.D.
Shigeyuki Yoshida, M.D.
Takashi Yoshiura, M.D., Ph.D.
Joseph S. Yu, M.D.
Dirk Zachow, M.D.
Valdir Zanderigo
Meghann & Adam M. Zarchan, M.D.
Zenon M. Zarewych, M.D.
Anna E. Zavodni, M.D.
Doris Zebedin, M.D.
Jerahmie L. Zelovitzky, M.D.
J.E. Fredrik Zetterberg, M.D.
Lei Zhang, M.D.
Karel J. Zuiderveld, Ph.D.
Vernon E. Zuri

Journal Highlights

The following are highlights from the current issues of RSNA's two peer-reviewed journals.

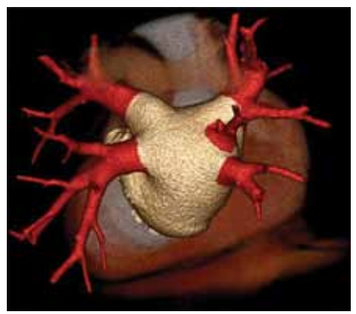
Current and Evolving Clinical Applications of Multidetector Cardiac CT in Assessment of Structural Heart Disease

While multidetector CT (MDCT) is most commonly performed for assessment of possible coronary artery disease, technologic advances and dose minimization strategies have enabled the technology's use as a complementary imaging modality to echocardiography and MR imaging for evaluation of noncoronary cardiac structures.

In an article in the April issue of *Radiology* (*RSNA.org/Radiology*), Arthur Nasis, M.B.B.S., of the Monash Cardiovascular Research Centre, Victoria, Australia, and colleagues provide an overview of the noncoronary cardiac structures that can be evaluated on standard MDCT studies and outline the established appropriate clinical uses of MDCT in the assessment of structural heart disease, as well as evolving periprocedural clinical applications. Specifically, the authors discuss assessment of:

- Pulmonary and cardiac veins prior to electrophysiology procedures
- Ventricularmorphology and function
- Valvular morphology and function in selected patients whose images from other noninvasive modalities are inadequate

"MDCT is being increasingly used for preprocedural evaluation of patient suitability for percutaneous procedures such as transcatheter aortic valve replacement and left atrial appendage device occlusion and for assessment of complications from these procedures," the authors write.



Three-dimensional multidetector CT volume-rendered reconstruction shows pulmonary vein anatomy. Note additional right-sided middle pulmonary vein.

(*Radiology* 2013;267;1:11–25) ©RSNA, 2013. All rights reserved. Printed with permission.

This article meets the criteria for *AMA PRA Category 1 Credit™*. SA-CME is available online only.

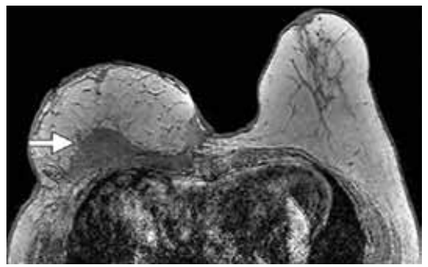
Breast Reconstruction: Review of Surgical Methods and Spectrum of Imaging Findings

Regardless of the reconstruction technique used, breast cancer can recur at the mastectomy site and may be recognized at an earlier stage by radiologists who are familiar with the spectrum of imaging findings.

According to an article in the March-April issue of *RadioGraphics* (*RSNA.org/RadioGraphics*), by Fanny Maud Pinel-Giroux, M.D., of the Centre Hospitalier de l'Université de Montréal, Canada, and colleagues, radiologists must be familiar with the range of normal and abnormal imaging appearances of reconstructed breasts, including features of benign complications as well as those of malignant change. Along with describing breast reconstruction based on the use of prosthetic implants and various kinds of autologous tissue flaps, the authors:

- Provide detailed descriptions of normal findings, benign changes and recurrent cancers seen at imaging in reconstructed breasts
- Present data culled from a retrospective analysis of the clinical records of 119 women who underwent a breast examination with MR imaging after mastectomy and breast reconstruction

Evidence in the existing literature is insufficient to support routine mammographic screening in women after autologous breast reconstruction, the authors write. "Although our patient sample was too small to allow definitive recommendations regarding the most appropriate method for monitoring breast health in women after mastectomy and breast reconstruction, the results of our retrospective analysis suggest that systematic follow-up with breast MR imaging might benefit women with a high risk for breast cancer recurrence due to factors such as a histologically aggressive primary tumor type or a genetic susceptibility," they write.



Seroma in a 60-year-old woman with pain and increased volume in the right breast immediately after its reconstruction with a DIEP flap. Axial T1-weighted MR images show a fluid collection in the posterior aspect of the reconstructed breast (*arrow*).

(*RadioGraphics* 2013;33;435–453) ©RSNA, 2013. All rights reserved. Printed with permission.

This article meets the criteria for *AMA PRA Category 1 Credit™*. SA-CME is available in print and online.

Radiology in Public Focus

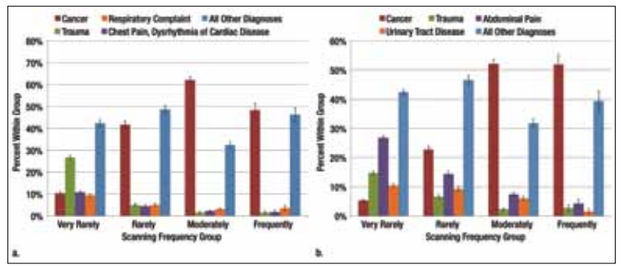
Press releases were sent to the medical news media for the following articles appearing in recent issues of *Radiology*.

Body CT Scanning in Young Adults: Examination Indications, Patient Outcomes and Risk of Radiation-induced Cancer

Among young adults undergoing body CT, risk of death from underlying morbidity is more than an order of magnitude greater than death from long-term radiation-induced cancer, according to new research.

Robert L. Zondervan, M.S., of Massachusetts General Hospital, Boston, and colleagues analyzed imaging records of patients 18 to 35 years old who underwent chest or abdominopelvic CT exams between 2003 and 2007 at one of three university-affiliated hospitals in Boston.

Researchers accessed records from 22,000 patients, including 16,851 chest and 24,112 abdominopelvic CT scans. During the average 5.5-year follow-up period, 7.1 percent of young adults who underwent chest CT and 3.9 percent of those who had abdominopelvic CT died: figures that were much greater than the 0.1 percent long-term risk of death from radiation-induced cancer predicted by statistical models in both groups.



***Above*: (*a*, *b*) Common examination indications according to frequency of scanning. The four most common reasons for chest (*a*) and abdominal (*b*) CT are shown in scanning frequency group, with 95 percent confidence intervals indicated.**

(*Radiology* 2013;267:In Press) ©RSNA, 2013. All rights reserved. Printed with permission.

Radiation reduction efforts should also focus on patients who are very rarely scanned rather than exclusively on those who are scanned repeatedly, according to the authors. "When consulting on radiation concerns, the radiologist should counsel that the underlying medical morbidity, rather than CT-induced cancer, is the much greater driver of a potentially adverse patient outcome," the authors write.

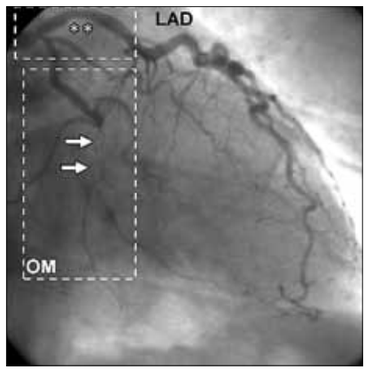
Submillisievert Median Radiation Dose for Coronary Angiography with a Second-Generation 320–Detector Row CT Scanner in 107 Consecutive Patients

The combination of a gantry rotation time of 275 milliseconds, wide-volume coverage, iterative reconstruction, automated exposure control and larger X-ray power generator of the second-generation CT scanner provides excellent image quality over a wide range of body sizes and heart rates at low radiation doses, according to new research.

Marcus Y. Chen, M.D., of the National Institutes of Health, Bethesda, Md., and colleagues performed contrast-enhanced coronary CT angiography (CCTA) with a second-generation 320-slice CT system on 107 adult patients (mean age, 55.4) and compared radiation exposure and image quality to those of CCTA exams previously performed on 100 patients using a first-generation 320-slice scanner.

Effective radiation dose was estimated by multiplying the dose-length product by an effective dose conversion factor and reported with size-specific dose estimates (SSDE). Image quality was evaluated by two independent readers.

The median radiation dose was 0.93 millisieverts (mSv) with the second-generation unit and 2.67 mSv with the first-generation unit. The median SSDE was 6.0 milligray (mGy) with the second-generation unit and 13.2 mGy with the first-generation unit. Overall, the radiation dose was less than 0.5 mSv for 23 of the 107 CTA examinations (21.5 percent), less than 1 mSv for 58 (54.2 percent), and less than 4 mSv for 103 (96.3 percent).



Obstructive coronary CT angiogram of proximal portion of obtuse margin (*OM*, *arrows*) in 67-year-old man (height, 67.7 cm; weight, 176 kg; body mass index, 29.5 kg/m2; effective diameter, 31.3 cm; heart rate, 44 beats per minute). Nonobstructive mixed calcified and/or noncalcified coronary artery disease (*) of proximal left anterior descending coronary artery (*LAD*) was present on the invasive angiogram. Estimated effective radiation dose was 0.90 mSv (dose-length product, 64.1 mGy × cm; CTDI, 5.3 mGy; SSDE, 6.16 mGy).

(*Radiology* 2013;267;1:76–85 ©RSNA, 2013. All rights reserved. Printed with permission.

All studies were of diagnostic quality with most having excellent image quality.

"Minimizing radiation exposure while maintaining diagnostic-quality scans is clearly feasible with this new second-generation 320–detector row CT scanner," the authors write. "The low dose achieved during CTA could be used to minimize overall radiation dose to the patient or to enable additional types of imaging (e.g., perfusion imaging) within reasonable radiation doses."

Continued on Page 22

Education and Funding Opportunities

RSNA Clinical Trials Methodology Workshop

January 11-17, 2014
Scottsdale/Ariz.
Applications due
June 15

Over the course of this 6½-day workshop, each trainee will be expected to develop a protocol for a clinical study, ready to include in an application for external funding. Participants will learn how to develop protocols for the clinical evaluation of imaging modalities. A dynamic and experienced faculty will cover topics including:

- Principles of clinical study design
- Statistical methods for imaging studies
- Design and conduct of multi-institutional studies
- Sponsorship and economics of imaging trials
- Regulatory processes

Applicants will undergo a competitive selection process for course entrance. Once admitted, trainees will participate in advance preparation, didactic sessions, one-on-one mentoring, small group discussions, self-study and individual protocol development. Familiarity with basic concepts and techniques of statistics and study design is required of all applicants.

More information and application/nomination forms for these programs are available at *RSNA.org/Research/educational_courses.cfm*. Questions can be directed to Fiona Miller at 1-630-590-7741 or *fmiller@rsna.org*.

RSNA/AUR/ARRS Introduction to Academic Radiology Program

Applications due
July 15

Sponsored by RSNA, the American Roentgen Ray Society (ARRS) and Association of University Radiologists (AUR), the Introduction to Academic Radiology program:

- Exposes second-year residents to academic radiology
- Demonstrates the importance of research in diagnostic radiology
- Illustrates the excitement of research careers
- Introduces residents to successful clinical radiology researchers

Successful applicants will be assigned to either a seminar held during the RSNA Scientific Assembly in Chicago, December 2-6, 2013, or the ARRS Scientific Meeting in San Diego, May 4-9, 2014.

Medical Meetings

April-May 2013

APRIL 22-24
British Nuclear Medicine Society (BNMS), 41st Annual Meeting, Brighton, United Kingdom
• *www.bnms.org.uk*

APRIL 25-28
Canadian Association of Radiologists (CAR), 76th Annual Scientific Meeting, Le Centre Sheraton, Montreal, Quebec
• *www.car.ca/en.aspx*

APRIL 27-MAY 1
American Radium Society (ARS), 95th Annual Meeting, The Phoenician, Scottsdale, Ariz.
• *www.americanradiumsociety.org*

MAY 2-5
The Radiological and Diagnostic Imaging Society of São Paulo (SPR), 43rd São Paulo Radiological Meeting (JPR 2013), 14th World Congress of the World Federation for Ultrasound in Medicine and Biology (WFUMB 2013) and the XVI Congress of the Latin American Federation for Ultrasound (FLAUS 2013), Transamerica Expo Center, São Paulo
• *www.spr.org.br/jpr2013*

MAY 4-8
American College of Radiology (ACR), 90th Annual Meeting and Chapter Leadership Conference, Washington Hilton Hotel, Wash., D.C.
• *amclc.acr.org*

MAY 9-11
Colegio Interamericano de Radiologia/Interamerican College of Radiology (CIR), 1er Curso de Actualizacion en Radiologia/ First Refresher Course in Radiology, Cancun, Mexico
• *www.webcir.org*

MAY 9-12
International Diagnostic Course Davos (IDKD), 3rd IDKD Intensive Course in Hong Kong, Diseases of the Chest and Heart, Hong Kong Convention and Exhibition Centre
• *www.idkd.org*

MAY 12-14
Society for Brain Mapping and Therapeutics (SBMT), 10th Annual World Congress of SBMT on Brain, Spinal Cord Mapping and Image Guided Therapy, Baltimore Convention Center
• *www.worldbrainmapping.org*

MAY 14-17
Iranian Society of Radiology (ISR), 29th Iranian Congress of Radiology (ICR), Olympic Hotel, Tehran, Iran
• *www.irsr.org*

FIND MORE EVENTS AT *RSNA.org/calendar.aspx*.

2013 CORE Workshop

Registration
Now Open

The 2013 Creating and Optimizing the Research Enterprise (CORE) workshop will be held Friday and Saturday, Oct. 25 and 26, 2013, in Oak Brook, Ill. The workshop will focus on strategies for developing and/or expanding research programs in radiology, radiation oncology and nuclear medicine departments. The CORE Program features a combination of presentations, case studies and group discussions.

More information and registration is available at *RSNA.org/CORE*.

RSNA Derek Harwood-Nash International Fellowship

Applications due
July 1

The Derek Harwood-Nash Fellowship program supports international scholars pursuing a career in academic radiology to study at North American institutions. Accepted participants will receive a stipend of up to $10,000 from RSNA to be used toward travel, living expenses and educational materials for the 6- to 12-week fellowship period.

The application for this program is available at *RSNA.org/Derek_Harwood-Nash_International_Fellowship.aspx*. For more information e-mail *CIRE@rsna.org*.

Eyler Editorial Fellowship

Applications due
May 1

The Eyler Editorial Fellowship provides an opportunity for radiologists in mid-career to further their experience in radiologic journalism.

Learn about manuscript preparation, peer review, manuscript editing, journal production, printing, and electronic publishing by working with *Radiology* Editor Herbert Y. Kressel, M.D., in Boston and *RadioGraphics* Editor Jeffery S. Klein, M.D., in Burlington, Vt. Each fellow will also visit the RSNA Publications and Communications Division at RSNA Headquarters in Oak Brook, Ill., and will work with the RSNA editorial team at RSNA 2013.

Learn more at *RSNA.org/ RSNA_William_R_Eyler_Editorial_Fellowship_.aspx*.

Radiology in Public Focus

Continued from Page 20

Media Coverage of RSNA

In January, 4,016 RSNA-related news stories were tracked in the media. These stories reached an estimated 4 billion people.

Print coverage included *USA Today*, *Detroit Free Press*, *Las Vegas Review-Journal*, *Palm Beach Post*, *Baltimore Sun*, *The Wall Street Journal*, *Boston Globe* and *Investor's Business Daily*.

Broadcast coverage included WPIX-TV (New York), WLS-TV (Chicago), WGN-TV (Chicago), WMAQ-TV (Chicago) and WCVB-TV (Boston).

Online coverage included Yahoo! News, *The Huffington Post*, MSNBC, *The Wall Street Journal*, *The New York Times*, *Forbes*, and *U.S. News & World Report*.

Total RSNA 2012 annual meeting media coverage through February 11, 2013, has resulted in 10,077 tracked media placements, yielding an estimated potential audience/circulation of more than 6.3 billion.

Notable placements for RSNA 2012 include: *USA Today*, *The Wall Street Journal*, *The Washington Post*, *Bloomberg News*, *Daily Mail* and *The Daily Telegraph*.

April Outreach Activities Focus on Coronary Artery Disease

In April, RSNA is distributing the "60-Second Checkup" audio program to nearly 100 radio stations across the U.S. The segments focus on the use of CT scanning to depict racial differences in coronary artery disease.

RadiologyInfo.org Posts New "Your Radiologist Explains" Videos

RadiologyInfo.org, the RSNA and American College of Radiology (ACR) public information website, will soon have 22 new video clips to help explain various radiology tests and treatments to patients. In addition, some of the videos will focus on explaining diseases or conditions that are either diagnosed or treated using radiology. These videos, which include topics such as cardiac CT, lung cancer, blood clots, pneumonia, brain tumors and more, are the latest in the "Your Radiologist Explains" series to provide website visitors with a unique format for learning about radiology procedures.

The videos feature PowerPoint presentations with images and narration. All presentations were created by members of the RSNA-ACR Public Information Website Committee. Visit *RadiologyInfo.org.vids*.

Annual Meeting Watch

News about RSNA 2013

RSNA® 2013 THE POWER OF PARTNERSHIP

December 1–6 | McCormick Place | Chicago

Advance Registration and Housing Open May 8

RSNA 2013 advance registration and housing open May 8 for RSNA and AAPM members. Non-member registration and housing open June 5. Advance Registration and Housing information is available at *RSNA.org/Attendees.aspx*.

RSNA 2013 Registration

How to Register

There are four ways to register for RSNA 2013:

1 INTERNET—Fastest way to register!
Go to *RSNA.org/register*

2 FAX (24 hours)
1-888-772-1888
1-301-694-5124

3 TELEPHONE
(Mon.-Fri. 8 a.m. – 5 p.m. CT)
1-800-650-7018
1-847-996-5876

4 MAIL
Experient/RSNA 2013
P.O Box 4088
Frederick, MD 21705 USA

Registration Fees

BY NOV. 8	AFTER NOV. 8	
$ 0	$100	RSNA/AAPM Member
0	0	RSNA/AAPM Member Presenter
0	0	RSNA Member-in-Training, RSNA Student Member and Non-Member Student
0	0	Non-Member Presenter
180	280	Non-Member Resident/Trainee
180	280	Radiology Support Personnel
825	925	Non-Member Radiologist, Physicist or Physician
825	925	Hospital or Facility Executive, Commercial Research and Development Personnel, Healthcare Consultant and Industry Personnel
325	325	One-day registration to view only the Technical Exhibits

Important Dates for RSNA 2013

May 8	Member registration and housing opens
June 5	Non-member registration and housing opens
July 10	Course enrollment opens
October 25	International deadline to have full conference badge mailed
November 8	Final housing and discounted registration deadline
November 27	Deadline to guarantee a seat for all ticketed courses
December 1-6	RSNA 99th Scientific Assembly & Annual Meeting

International Visitors

If you must apply for a temporary non-immigrant visa to attend RSNA, you are advised to apply as soon as travel to the U.S. is decided and no later than three to four months in advance of the travel date. RSNA offers a personalized official letter of invitation for RSNA 2013 attendees. Information is available at *RSNA.org/International_Visitors.aspx*.

The Value of Membership

Use Fellowship Connect to Find, Post Fellowship Positions

With RSNA's online resource Fellowship Connect, residents and practicing radiologists can search for fellowship positions by specialty, location and institution. Users can read institutional profiles, find out if fellowship positions are available, get contact information and more.

Gaining access to Fellowship Connect:

RSNA Members: Using their member login, RSNA members can personalize their searches by entering key words such as the name of the institution, state or specialty. Fellowship Connect provides a print feature and save option that allows members to store search results for later viewing.

Institutions: After creating an account, institutions can post company profiles, available fellowship positions, contact information and website links. Each institution is responsible for keeping fellowship information current on the website.

RSNA Membership™

To access Fellowship Connect, go to *fellowships.RSNA.org*.

RSNA.org

RSNA's Career Connect Links Users to Radiology Jobs, Candidates

Whether you're looking for that ideal radiology job or the perfect candidate to fill such a position, RSNA's Career Connect™ is your one-stop online resource.

Accessible on the bottom of the *RSNA.org* page, the comprehensive job search site is tailored to fulfill all your staffing needs.

Job seekers can post resumes for free, create a Search Agent to filter out unwanted positions, and receive e-mails when the perfect job becomes available. Jobs are updated daily with the latest job listings in the field.

Employers can post job positions, receive e-mail notification when someone applies to a job, and access a large resume database. Employers can also enhance their candidate search for a minimum fee by placing an ad in the Employer Spotlight that runs along the top of all job search results pages.

The site also features career-related news and updates, a list of FAQs, feedback/contact button and more.

Residents & Fellows Corner

Don't Miss a Thing: Keep Your RSNA Profile Up-to-Date

Residents and fellows who will be moving to a new position in the coming months are encouraged to update their contact information with RSNA.

Log in at *myRSNA.org* and click Edit Profile to update your personal information. Having a current street and personal email addresses on file with RSNA means you won't miss out on:

- Subscriptions to *Radiology*, *RadioGraphics* and *RSNA News*
- Special membership rates for members transitioning from residency or fellowship to practice
- E-mail news bulletins, including *RSNA Insider* and *RSNA Weekly*
- Annual meeting announcements

RSNA members transitioning to practice after residency or fellowship pay just $100 their first year and $200 their second year. Full dues are not required until the third year. If you have questions or wish to renew by phone, call 1-877-RSNA-MEM (776-2636) or 1-630-571-7873 (outside the U.S. or Canada).

RSNA®
Radiological Society
of North America

William R. Eyler
Editorial Fellowship

Experience radiologic journalism firsthand...

The Eyler Editorial Fellowship provides an opportunity for radiologists in mid-career to further their experience in radiologic journalism. Learn about manuscript preparation, peer review, manuscript editing, journal production, printing, and electronic publishing by working with the...

Editor of *Radiology*
Boston, Massachusetts,
for 2 weeks

Editor of *RadioGraphics*
Burlington, Vermont,
for 2 days

RSNA Publications Department
Oak Brook, Illinois,
for 2 days

The fellow will also assist the editors and attend editorial meetings during the RSNA annual meeting.

Award

One fellow will be selected each year and will be awarded a stipend of $10,000 to cover the cost of transportation, lodging, and meals during the fellowship.

Eligibility

Candidate must:

- ✓ Be an RSNA member
- ✓ Have accomplished at least 3 years of attending-level work at an academic institution
- ✓ Have served as a reviewer for a major imaging journal
- ✓ Be affiliated with a national radiologic society in his or her country

Applications

Learn more and download an application at ***RSNA.org/publications/editorial_fellowships.cfm***
or email ***editfellowships@rsna.org.***

Deadline for applications is May 1, 2013

The Fellowship Experience

Fellows prepare evaluations and follow-up reports on their experiences during and as a result of the fellowship.

See firsthand accounts at
RSNA.org/publications/editorial_fellows.cfm

PUB214-R10/12